

Five-Year Review Report

First Five-Year Review Report

for

Baytown Ground Water Contamination Superfund Site

Baytown Township

Washington County, Minnesota

March 2007

PREPARED BY:

Minnesota Pollution Control Agency St. Paul, Minnesota

Approved by:

Michael Kanner

Manager, Superfund Section

Minnesota Pollution Control Agency

Approved by:

Richard C. Karl

CDirector, Superfund Division

U.S. Environmental Protection Agency, Region 5

Date:

Date:

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LIST OF ACRONYMS

ARARs Applicable or Relevant and Appropriate Requirements

CCI4 Carbon Tetrachloride

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

CFR Code of Federal Regulations

DIR Determination of Inadequate Response

FS Feasibility Study

GAC Granulated Activated Carbon

HRL Health Risk Level IC Institutional Control

IREL Interim Recommended Exposure Level
MAC Metropolitan Airports Commission
MCLs Maximum Contaminant Levels
MDH Minnesota Department of Health

M-FS Mini-Feasibility Study

MPCA Minnesota Pollution Control Agency

NCP National Oil and Hazardous Substances Contingency Plan

NPL National Priorities List

OU Operable Unit

PLP Permanent List of Priorities
PRP Potentially Responsible Party

RA Remedial Actions

RAO Remedial Action Objective

RCRA Resource Conservation and Recovery Act

RFRA Request for Response Action

ROD Record of Decision

SWCA Special Well Construction Area

TCE Trichloroethylene

USDA United States Department of Agriculture

USEPA United States Environmental Protection Agency

VOCs Volatile Organic Compounds

μg/L Micrograms per liter (parts per billion)

EXECUTIVE SUMMARY

The remedy for the Baytown Ground Water Contamination Superfund Site (Site) located in Baytown Township, Washington County, Minnesota, included the following measures as identified in the original Record of Decision (ROD) dated June 25, 2000:

- 1. Prevent the use of ground water that has contaminant concentrations exceeding the Minnesota Department of Health (MDH) Health Risk Limits (HRL)s.
- 2. Prevent further degradation of the aquifer.

The major components of the selected remedy included actions that would protect the public from chemicals in the ground water exceeding established health standards, monitor ground water contamination. forecast the movement of ground water contaminants, and evaluate emerging technologies to locate and remove, as practical, the sources of the contamination. The specific remedies implemented to address the goals identified in the ROD included the following:

- Install and maintain granulated activated carbon (GAC) units on private wells that have TCE and/or CCI4 concentrations that exceed MDH HRLs or the HRL additivity index. Provide GAC unit maintenance procedures and carbon change out when TCE or CCI4 is detected in GAC effluent.
- Conduct long-term monitoring of private water supply wells and monitoring wells
 to evaluate the need for treatment, and clearly define the edges of the plume.
 Provide ground water monitoring to evaluate how the plume responds to new
 residential and municipal demand.
- Continue to closely monitor wells with increasing TCE concentrations approaching the HRL, but not yet exceeding it, in anticipation of possible HRL exceedances, and be prepared to install GAC units on these wells.
- Maintain the Special Well Construction Area (SWCA) created by the MDH for the Site in 1988 and subsequently expanded due to changes in MDH TCE standards (See Figure 1).
- Maintain ongoing evaluation of existing and emerging technologies that may provide source location and removal, or control.
- Remove pump, inspect, sample and abandon the unused irrigation well located on the Schittgen property.

- Evaluate the need for, and install if necessary, down gradient monitoring points.
- Develop a groundwater model in cooperation with the MPCA and MDH or modify an existing groundwater model, as determined and approved by the MPCA to evaluate future chemical fate and transport scenarios, especially the potential for further horizontal and vertical migration of the Baytown plume due to future local and regional groundwater supply demands.
- Remain current with the latest TCE health risk information; specifically U.S. EPA's pending revisions of the toxicity values for TCE ingestion, inhalation and dermal exposure. If new information warrants it, MDH may consider a revision to the current TCE HRL. If the HRL is revised in a direction that results in additional private wells exceeding the revised HRL, carbon filtration systems will be provided for these additional residences.

The triggering action for this five-year review, which is the date of the Remedial Action on-site construction start April 1, 2002, as shown in EPA's WasteLAN database. The selected remedy left hazardous substances at the site at concentrations that prevented unlimited use and unrestricted exposure.

Since 1988, the well owners, MPCA, and MAC have installed GAC filters to treat over 190 water wells located in the SWCA. The MPCA is currently managing periodic sampling and changeout of GAC filters for the each of the wells. Approximately 140 GACs were installed by MAC, 20 by MPCA, and 30 by residents. GAC filters are sampled every three to six years for break through. GAC filters are changed out at a maximum schedule of every six years for domestic wells. The SWCA has been maintained and was actually expanded in January 2002, when MDH issued a new interim recommended exposure limit for TCE of 5 μ g/L, to be used in place of the existing HRL of 30 μ g/L. This action was completed in response to the issuance by EPA of a draft health risk assessment for TCE.

In May of 2003, MDH Drinking Water Protection Program staff also collected samples from the City of Bayport municipal wells as a part of the regular monitoring of that system. Samples from the three city wells were analyzed for VOCs. TCE was detected in Bayport well #2 at a concentration of 1.2 μ g/L. Bayport well #2 is located approximately one mile northeast of the two private Franconia aquifer wells that also showed TCE contamination in May of 2003. TCE concentrations in well #2 have increased since it was first detected, at times slightly exceeding the Federal MCL for TCE of 5 μ g/L. The City's other two active wells have also shown low level detections of TCE.

Investigation activities conducted by the MPCA from 2002 to 2006 succeeded in further delineating the contaminant plume and identifying a primary source area. Based on investigation results, it is believed that the primary source of the TCE contamination is located beneath the Hagberg Property at 11325 Stillwater Boulevard in Lake Elmo,

Minnesota. Although the property is currently occupied by Hagberg's Country Market, a grocery store/gasoline station, and retail shops, the property was formerly occupied by the Nielsen Products Company metal working facility from 1940 to 1968. Additional investigation of the Hagberg Property involving advancement of soil probes and installation of monitoring wells began in October 2004 and continued through September 2006. This investigation further delineated the location of the TCE source to an area near or beneath the current building on the property.

The MPCA conducted a Mini-Feasibility Study (M-FS) in 2005 with the purpose of evaluating potential methods for containing the source area identified at the Hagberg Property. The M-FS researched available technologies for installation of a barrier wall or alternative system to minimize ground water contaminants from migrating off the site. Potential Remedial Actions (RAs) that were selected for evaluation in this study included: (1) In Situ Permeable Reactive Barrier; and (2) Ground water capture system henceforth referred to as a hydraulic barrier. Based on the information contained in the M-FS, the MPCA proposed the hydraulic barrier as the recommended method for containment of the contamination at the source area.

In the Fall of 2006, the MPCA began the process of evaluating technologies for treating and reducing the source area concentrations of TCE on the Hagberg Property. Design of the treatment method is anticipated to be completed by June 2007. It is anticipated that the treatment technology will consist of in-situ chemical or biological treatment of the source zone with nutrient injection.

This two phased approach of source area treatment and plume containment will not only contain the contaminant plume. but will also restore the aquifer through treatment of the source zone and natural attenuation. The goal of addressing the source area is to reduce the time necessary for the hydraulic barrier to operate and downgradient private wells to remain on GAC filters.

The remedy is functioning as intended and is protective of human health and the environment in the short-term because GAC filters are installed and maintained on private wells exceeding MDH limits as required under township ordinance or as authorized by the MPCA. Compliance with institutional controls and the use of GAC filters on private wells that exceed MDH limits are necessary until the groundwater achieves MDH limits throughout the plume. Long-term protectiveness will be achieved when source areas are addressed and MDH limits are achieved throughout the plume.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION Site name (from WasteLAN): Baytown Township Ground Water Plume EPA ID (from WasteLAN): MND982425209 State: MN Region: 5 City/County: City of Lake Elmo/Washington County SITE STATUS NPL status: Listed, State deferral Remediation status: Construction Underway Multiple OUs?* Yes Construction completion date: TBD Has site been put into reuse? No **REVIEW STATUS** Lead agency: Minnesota Pollution Control Agency **Author name: Dan Card Author title: Project Leader Author affiliation: MN Pollution Control Agency** Review period: November 2006 through March 2007 Date(s) of site inspection: TBD Type of review: Post-SARA Pre-SARA NPL State/Tribe-lead Review number: 1 (first) Triggering action: Implementation of remedy as selected by ROD. Triggering action date (from WasteLAN): April 1, 2002 Due date (five years after triggering action date): April 1, 2007

^{* [&}quot;OU" refers to operable unit.]

^{** [}Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form

issues:

- 1. New operable units are necessary.
- 2. New exposure limit for TCE.
- 3. TCE contamination in Bayport municipal well.
- 4. Primary source area identified.
- 5. A containment method for the source has been proposed.
- 6. Update O&M Plan to address all treatment areas and to ensure long-term stewardship which includes maintaining and monitoring effective ICs.

Recommendations and Follow-up Actions:

- Conduct remedy decision process to address new operable units.
- 2. Modify the ROD to reflect the new exposure limit for TCE.
- 3. Identify the treatment system currently being installed on the Bayport well as an early action and select a final remedy through the remedy decision process.
- 4. Conduct an FS and through the remedy decision process select a method for treating the source area. Once the final method is selected, implement the source area treatment.
- 5. Complete the remedy decision process for selection of a containment method for the source area.
- 6. Update O & M Plan.

Protectiveness Statement(s):

The remedy is functioning as intended and is protective of human health and the environment in the short-term because GAC filters are installed and maintained on private wells that exceed MDH limits as required by institutional controls. Compliance with institutional controls and the use of GAC filters on private wells that exceed MDH limits are necessary until the groundwater achieves MDH limits throughout the plume. Long-term protectiveness will be achieved when source areas are addressed and MDH limits are achieved throughout the plume.

Other Comments: None

FIVE-YEAR REVIEW REPORT

Baytown Ground Water Contamination Superfund Site Baytown Township, Washington County, Minnesota

I. INTRODUCTION

The purpose of the Five-Year Review is to determine whether the remedy at the Baytown Ground Water Contamination Superfund Site is protective of human health and the environment. The methods, findings and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues during the review, if any, and identify recommendations to address them.

The Minnesota Pollution Control Agency (MPCA) is preparing this Five-Year Review report pursuant to CERCLA Section 121 and the National Contingency Plan (NCP). CERCLA Section 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to ensure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such actions.

This requirement is interpreted further in the NCP; 40 CFR Section 300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after initiation of the selected remedial action.

The Minnesota Pollution Control Agency (MPCA) has conducted a five-year review of the remedial action implemented at the Baytown Ground Water Contamination Site in Baytown Township, Minnesota. This review was conducted from November 2006 through March 2007. This report documents the results of the review.

This is the first five-year review for the Baytown Ground Water Contamination Site. The triggering action for this five-year review is the date of the Remedial

Action on-site construction start, which is April 1, 2002 as shown in EPA's WasteLAN database. The selected remedy left hazardous substances at the site at concentrations that prevented unlimited use and unrestricted exposure.

II. SITE CHRONOLOGY

TABLE 1: Chronology of Site Events

IADLE 1. U	ironology of Site Events
Date	Event
6/1987	MDH sampling of private water wells surrounding the Baytown
	Dump detects several volatile organic compounds (VOCs),
	including TCE and CCI4.
5/1988	MDH establishes the SWCA.
1988	Site listed on the Minnesota Permanent List of Priorities (PLP).
12/16/1994	Site listed on the National Priorities List (NPL).
6/1995	MPCA assumed full responsibility for oversight of Site under the
	Enforcement Deferral Pilot Project.
1999	Consent Order.
4/1999	Feasibility Study (FS) completed for the site.
5/1999	Proposed Plan published.
5/2000	EPA and MPCA executed a Record of Decision (ROD).
1999 to	Site wide water well sampling and GAC installation initiated.
_present	
1988 to	MAC conducted investigations at and near Lake Elmo Airport.
2001	
2002 to	MPCA conducts investigations designed to identify TCE source
2004	area.
2004	MPCA investigations succeed in locating primary TCE source
	area.
2004 to	MPCA conducts investigations designed to further delineate the
present	nature and extent of the TCE source area and to characterize the
	site.
2/2005	M-FS completed for TCE plume containment near on-site.
2005 to	MPCA pursuing design, approval, and implementation of remedial
present	actions addressing the ground water contamination plume and
	source area.

III. BACKGROUND

Physical Characteristics

The Baytown Township Ground Water Contamination Site (Site) is defined by a 12.5 square-mile Special Well Construction Area (SWCA) designated by the Minnesota Department of Health (MDH). The Site is located in central Washington County between the City of Lake Elmo and the St. Croix River. The Site includes

portions of eastern Lake Elmo, the portion of Baytown Township at the east of the Lake Elmo Airport, northern West Lakeland Township, and the southern two-thirds of Bayport. The contaminant of concern at the Site, 1,1,2-trichloroethylene (TCE), has been released to ground water. The TCE plume is located within the Site and is approximately five miles long and covers 7 square miles. There are approximately 650 homes and several businesses located within the TCE plume that are served by private wells. The land use in the area is largely airport, agricultural and low-density residential.

The contaminated ground water is primarily in the Prairie du Chien-Jordan aquifer, which is the major source of drinking water for many residents in the area (through private and residential wells).

Land and Resource Use

Baytown Township is a rapidly developing rural/suburban residential area on the eastern edge of the Minneapolis-St. Paul metropolitan area. The Baytown Site is bounded to the east by the St. Croix River. The land use is primarily agricultural and residential. The Lake Elmo airport is located near the western end of the plume and is currently administered by the Metropolitan Airports Commission (MAC). An estimated 5,000 people live in the area; 50 percent of the residents use private wells for their water supply. The Site location and nearby features are shown in Figure 2.

History of Contamination

In June 1987, the MDH sampled wells in the area surrounding the former Bayport Dump as part of a statewide program to determine water quality near solid waste facilities. The Bayport Dump is located approximately one-half mile northwest of Bayport and approximately five miles northeast of Lake Elmo. The testing found VOCs, primarily TCE, in private wells. The MDH, along with the MPCA and Washington County, expanded the sampling program farther west, to the City of Lake Elmo. The results indicated that TCE was detected in numerous wells. The highest TCE concentrations were in wells at the Lake Elmo Airport, located one mile east of the Lake Elmo business district.

Initially, the MPCA identified the Lake Elmo Airport as the suspected source for the TCE, because TCE was thought to have been used as a metal and parts degreaser by the aviation industry. In April 1988, the MPCA asked the MAC, as owner of the Lake Elmo Airport, to investigate that Site. The MAC, in response to the detection of TCE in ground water beneath the airport, initially conducted four phases of assessment work at and near the Lake Elmo Airport beginning in May 1988 and continuing through 1991. Based on four phases of site assessment, the MAC believed there was no direct evidence indicating that TCE was used or disposed of at the Lake Elmo Airport. TCE was primarily detected in the Prairie du Chien, which is located approximately 100 feet beneath the surface at the airport. The highest concentrations were observed in the main

hangar area near the western property boundary. TCE was also found in high concentrations in wells located 100 feet west (up gradient and off the MAC property) and 1,000 feet north of the main hangar area. The MAC and the MPCA each conducted further investigations between 1992 and 1998. Results of the investigations discovered TCE up gradient from the airport (further west towards the City of Lake Elmo).

In May of 2003, MDH Drinking Water Protection Program staff also collected samples from the City of Bayport municipal wells as a part of the regular monitoring of that system. Municipal well locations are shown in Figure 2. Samples from the three city wells were analyzed for VOCs. TCE was detected in Bayport well #2 at a concentration of 1.2 μ g/L. Bayport well #2 is located approximately one mile northeast of the two private Franconia aquifer wells that also showed TCE contamination in May of 2003. TCE concentrations in well #2 have increased since it was first detected, at times slightly exceeding the federal MCL for TCE of 5 μ g/L. The City's other two wells have also shown low level detections of TCE.

Investigation activities conducted by the MPCA from 2002 to 2006 succeeded in further delineating the contaminant plume and identifying a primary TCE source area. Based on investigation results, it is believed that the primary source of the TCE contamination is located beneath the Hagberg Property at 11325 Stillwater Boulevard in Lake Elmo. Minnesota (See Figure 2). Although the property is currently occupied by Hagberg's Country Market, a grocery store/gasoline station, and retail shops, the property was formerly occupied by the Nielsen Product Corporation metal working facility from 1940 to 1968. Additional investigation involving advancement of soil probes and installation of monitoring wells conducted began in October 2004 and continued through September 2006. This investigation further delineated the location of the TCE source to an area near or beneath the current building on the property (Figure 3).

Initial Response

The MDH created a Special Well Construction Area (SWCA) for the Site in May 1988 (See Figure 1). The purpose of the SWCA was to inform well owners and drillers about the potential for contaminated ground water in the area and to prevent further degradation of the aquifers. The Site was subsequently listed on the State Superfund Permanent List of Priorities (PLP) in 1988. The Site was also added to the Federal Superfund National Priorities List in 1994. On June 20, 1995, United States Environmental Protection Agency (USEPA) and the MPCA entered into an agreement entitled "Minnesota Pollution Control Agency Enforcement Deferral Pilot Project" (Enforcement Deferral Pilot Project). Under the Enforcement Deferral Pilot Project, the MPCA assumed full responsibility for regulatory oversight at 13 State-enforcement lead sites, including the Site. As part of the agreement, USEPA is deferring to the MPCA on-site decisions. USEPA's role with regard to the Enforcement Deferral Pilot Project sites is to

ensure that the selected remedies are protective of human health and the environment and that decisions made by the MPCA are consistent with the NCP.

The MPCA observed elevated TCE contamination in an area of the airport centered beneath the main hangar area of the airport. Based on that MPCA observation, it was determined that the MAC was a responsible party under the Minnesota Environmental Response and Liability Act and the MPCA issued a Request for Response Action (RFRA) in August 1991. The RFRA requested that the MAC investigate further and implement remedial action at the site. The MAC declined to undertake the actions set forth in the RFRA. The MPCA then issued a Determination of Inadequate Response (DIR) to the MAC in December 1991. However, as a result of subsequent discussions with the MPCA, the MAC agreed in January 1992 to conduct additional investigations.

The MAC and the MPCA executed a Consent Order dated March 1999, whereby the MAC proceeded as a volunteer to work cooperatively with the MPCA for selection and implementation of a remedy. The MAC completed a FS for the Site in April 1999. The FS analyzed various remedial alternatives for the site. The MPCA published the Proposed Plan for the Site on May 1, 1999, which outlined the remedial actions eventually identified in the June 2000 ROD.

Basis for Taking Action

Hazardous substances that have been detected in each medium include:

1. Ground Water

TCE

Exposure to contaminated ground water is associated with significant human health risk. The risk was highest for exposures to ground water due to the high concentrations of carcinogenic TCE that exceed State HRL and Federal MCLs for drinking water.

2. Soil Gas/Vapor

Although it has not been observed, the potential exists for soil vapor intrusion into the building on the Hagberg Property and other existing or planned structures located on the plume.

3. Soil

Although not yet observed, contaminated soil may be present at depth on the Hagberg Property.

IV. REMEDIAL ACTIONS

Remedy Selection

The site-specific Remedial Action Objectives (RAOs) as identified in the original ROD for this Site were:

- 1. Prevent the use of ground water that has contaminant concentrations exceeding the MDH HRLs.
- 2. Prevent further degradation of the aquifer.

The major components of the selected remedy included actions that would protect the public from chemicals in the ground water exceeding established health standards, monitor ground water contamination, forecast the movement of ground water contaminants, and evaluate emerging technologies to locate and remove, as practical, the sources of the contamination. The specific remedies implemented to address the goals identified in the ROD included the following:

- Install and maintain granulated activated carbon (GAC) units on private wells that have TCE and/or CCI4 concentrations that exceed MDH HRLs or the HRL additivity index. Provide GAC unit maintenance procedures and carbon change out when TCE or CCI4 is detected in GAC effluent.
- Conduct long-term monitoring of private water supply wells and monitoring wells to evaluate the need for treatment, and clearly define the edges of the plume. Provide ground water monitoring to evaluate how the plume responds to new residential and municipal demand.
- Continue to closely monitor wells with increasing TCE concentrations approaching the HRL, but not yet exceeding it, in anticipation of possible HRL exceedances, and be prepared to install GAC units on these wells.
- Maintain the SWCA created by the MDH for the Site in 1988 and subsequently expanded due to changes in MDH TCE standards (See Figure 1).
- Maintain ongoing evaluation of existing and emerging technologies that may provide source location and removal, or control.
- Remove pump, inspect, sample and abandon the unused irrigation well located on the Schiltgen property.

- Evaluate the need for, and install if necessary, down gradient monitoring points.
- Develop a groundwater model in cooperation with the MPCA and MDH or modify an existing groundwater model, as determined and approved by the MPCA to evaluate future chemical fate and transport scenarios, especially the potential for further horizontal and vertical migration of the Baytown plume due to future local and regional groundwater supply demands.
- Remain current with the latest TCE health risk information; specifically U.S. EPA's pending revisions of the toxicity values for TCE ingestion, inhalation and dermal exposure. If new information warrants it, MDH may consider a revision to the current TCE HRL. If the HRL is revised in a direction that results in additional private wells exceeding the revised HRL, carbon filtration systems will be provided for these additional residences.

Remedy Implementation

GAC Filters

From June 2000 until early 2002, remedy associated activities consisted primarily of ground water monitoring and maintaining the SWCA. In January 2002, MDH issued a new interim recommended exposure limit (IREL) for TCE of 5 μ g/L, to be used in place of the existing HRL of 30 μ g/L to evaluate drinking water from private wells (MDH 2002). This action was completed in response to the issuance by EPA of a draft health risk assessment for TCE.

The establishment of an IREL for TCE of 5 µg/L precipitated a series of actions in 2002 by the public entities involved with the site (MPCA, MDH, MAC, and Washington County). Notification was sent to property owners with private wells that had previously shown a concentration greater than 5 µg/L of TCE. These wells were subsequently fitted with whole-house GAC filters by the MAC at no cost to the homeowners (125 private wells were fitted in 2002 and 2003). The MAC volunteered to install these filters, even though it was not legally obligated to do so under the ROD because the HRL for TCE had not been formally changed by rule. Homes with the highest levels of TCE had GAC filters installed first, and in the interim the MPCA provided home delivery of bottled water until the GAC filter systems were installed. On February 15, 2002, the MDH expanded the boundaries of the Special Well Construction Area in response to TCE detections in private water supply wells located outside the previous SWCA boundary.

Starting in March 2002, wells that had previously shown levels of TCE less than 5 μ g/L were re-sampled to determine if the concentration of TCE had risen above 5 μ g/L. Wells that were found to exceed 5 μ g/L were also fitted with a whole-house GAC filter system by the MAC. Additional well sampling was conducted in 2003

throughout the affected area to determine if any other wells were approaching the IREL for TCE, or required more frequent monitoring.

Following the issuance of the IREL for TCE, the MAC stated that it would only provide whole house GAC filter systems to homes where the level of TCE equaled or exceeded 5 µg/L if the wells were in existence or the properties were platted for development by Washington County on, or before April 9, 2002. The MAC maintains that wells installed on properties platted after that date are not eligible for GAC filters from the MAC, regardless of the TCE concentrations in those wells. This position has not been formally challenged to date. The position is based on notice of the presence of contamination given to the public in February 2002.

The MPCA developed a sampling plan to monitor over 600 private wells affected by the Baytown Site TCE plume. If wells exceed the 5 µg/L IREL, the MPCA offers bottled water to residents until GAC systems can be installed. Occupants of properties that were platted after April 9, 2002 are not supplied with bottled water. The MPCA and the MAC installed over 160 GAC systems by 2006. GACs are normally changed out every two to six years depending on the concentration of TCE and the volume of water use. To date, the MPCA has installed over 20 GAC systems, MAC installed approximately 140 GAC systems and residents have installed approximately 30 GAC systems themselves. Thus, there are approximately 190 GAC systems in service currently.

Monitoring of private wells is currently being conducted by the MPCA. The MPCA samples wells on the following schedule, based on the concentration of TCE detected in the well:

TCE Concentration	Sampling Frequency
4.3 - 4 9 μg/L	Quarterly
3.0 - 4.2 µg/L	Semi-annually
2.0 - 2.9 μ g/L	Annually
1.0 - 1.9 μg/L	Every two years
0.1 - 0.9 μg/L	Every four years

It should be noted that not all private wells within the SWCA are monitored on a regular basis. Many wells within the SWCA do not need routine monitoring because they are far enough from the edge of the plume that movement of the plume in their direction will be detected through monitoring of nearby residential wells.

The MPCA now maintains responsibility for the maintenance of the GAC filter systems installed by the MAC and MPCA. The GAC filter systems consist of two, 90-pound filter vessels connected in series, with sampling ports installed before and between the two units. A flow meter is also installed to measure water usage. Organic compounds present in the raw well water are adsorbed onto the GAC granules and removed from the water. The capacity of an individual 90-pound GAC filter canister for the removal of organic contaminants

is based on the type of compound, its concentration in the raw water, and the amount of water used. Figure 7 shows a schematic of a typical GAC filter installation.

The GAC filter systems are designed so that when the first 90-pound GAC filter canister has reached its capacity to remove contaminants, the second canister will capture them (a condition referred to as "break-through"). Sampling of the water from the port located between the two canisters is done to monitor for break-through, and the quantity of water used is monitored to estimate when break-through may be imminent. During filter change out, the first canister in the direction of flow is removed for proper disposal, the second canister moved to the first position, and a new 90-pound GAC canister is installed in the second position. To document the performance of the GAC filter systems installed by the MAC, the MPCA collected post-filter samples from 14 of the initial systems installed in 2002 for laboratory analysis for VOCs. The results confirmed that TCE was not detected above laboratory reporting limits indicating that well users were not exposed to the contaminants.

System Operations and O&M Costs

The maintenance schedule for the GAC filter systems is based on data collected from systems installed in the past at the site, and from other available data. Using these data, Wenck Associates calculated the number of gallons of water capable of being treated by the first 90-pound GAC canister under four different concentration ranges of TCE as a primary action limit for filter change-out, and a calculated time factor as a secondary action limit. The calculated capacities include a safety factor of three (that is, the number reflects the actual calculated number divided by 3), and are as follows (Wenck 2003):

Primary Action Limit for GAC	Secondary Action Limit for
Change-Out (gallons of water)	GAC Change-Out (years)
790,000	· 6
560,000	4
360,000	3
240,000	2
	Change-Out (gallons of water) 790,000 560,000 360,000

Once per year the MPCA mails out a form to each owner of a well fitted with a GAC filter system for the owner to record the flow meter reading and return it to the MPCA. More frequent readings may be needed for large water users. The MPCA maintains records of water usage, and conducts the change-out of the GAC filter systems when the action limits are reached. To verify that the above schedule is adequately conservative, water samples are collected before and between the two GAC filter vessels during change-out of the first five systems in each of the four categories. MPCA also samples every GAC for homes platted prior to April 2002 in maximum intervals of six years.

New homes continue to be built within the SWCA. The MDH has adopted a

position of strongly encouraging homebuilders to complete their water supply wells in a clean, unimpacted aquifer, where reasonably available. MDH is also encouraging developers to strongly consider the construction of community public water supply wells for new housing developments. A community water supply well would serve 15 or more homes, fall under the regulation of the federal Safe Drinking Water Protection Act, require a certified water operator, and would be inspected and tested on a regular basis by MDH.

The average annual O&M costs are as follows:

<u>0&M</u>	Estimated	Average Annual	Average Annual
Activity	Cost	Occurrence	Cost
GAC Installation	\$1.500	4	\$6,000
GAC Change-out	\$ 450	32	\$14,400
and maintenance	34 30	JZ	

Ground Water Plume Monitoring and Source Area Identification

The remedy also includes ongoing efforts designed to provide continued monitoring of the ground water contamination plume and identify the primary source area of the TCE. The results of these efforts are described in more detail in Section VI. Data Review

Institutional Controls

Institutional controls (ICs) are non-engineered instruments, such as administrative and legal controls that help to minimize the potential for exposure to contamination and that protect the integrity of the remedy. ICs are required to assure long-term protectiveness for areas which do not allow for unlimited use or unrestricted exposure.

The ROD signed in June 2000 cited the SWCA IC as one of the mechanisms for pursuing the Remedial Action Objectives. Because of the elevated levels of VOCs, the MDH first issued a well drilling advisory in 1988, which was modified in 2001, 2002 and 2005 and currently encompasses the area shown in Figure 1. The advisory, eventually renamed the SWCA, requires:

- Well contractors and well owners to submit well construction plans and to receive written approval from MDH prior to constructing, reconstructing, or sealing wells in the Baytown Special Well Construction Area; and
- Well owners to test water from new private water supply wells for VOCs, prior to hookup, to verify that the ground water meets MDH health-based criteria.

The attached map in Figure 1 identifies the area of groundwater contamination. This area does not support unlimited use or unrestricted exposure. The table below summarizes existing institutional controls for these restricted areas:

Table 2: Institutional Controls Summary Table

Media, Engineered Control, & Areas that Do Not Support UU/UE Based on Current Conditions.	IC Objective	Title of Institutional Control Instrument Implemented
Groundwater – West Lakeland – current area that exceeds groundwater cleanup standards identified in Figure 2.	Prohibit ingestion exposure and provide information to educate	West Lakeland Township Ordinance - requires testing of private wells intended for human consumption and installation of GAC filters systems on wells that exceed 5 ug/L TCE and 3 ug/L CCL4. Effective Date 2004
Groundwater – Baytown - current area that exceeds groundwater cleanup standards identified in Figure 2.	Prohibit ingestion exposures and all uses and provide information to educate	Town of Baytown Ordinance No. 38 - requires testing of private wells intended for human consumption and installation of GAC filters systems on wells that exceed 0.5 ug/L TCE and 0.5 ug/L CCL4. Effective Date 8/5/2005
Groundwater – Washington County- current area that exceeds groundwater cleanup standards identified in Figure 2.	Provide information to educate and modify behavior	Minn. Stat. 1031.236 -requires sellers of property with unsealed well to notify buyers that it is located in a Special Well Construction Area Effective Date 2003
Groundwater – current area that exceeds groundwater cleanup standards identified in Figure 2. Sitewide	Limit well installation	Minn. Dept. of Health Special Well Construction Areas (under Minn Chapters 1031 and 4725) Requires MDH approval for well installation Effective Date 1998.

A map which depicts the areas subject to use restrictions is included as Figure 2. This map will serve as an additional source of information to inform the public of the areas subject to restrictions.

As noted above, Baytown and West Lakeland Township have enacted ordinances that apply to new wells constructed on properties platted after April 9, 2002 (Appendix A). The ordinances require well owners to regularly test the water for VOCs, and report results to the township; require the well owner to install an approved whole-house GAC filter system if TCE levels exceed 5 μ g/L; and require the well owner to replace the activated carbon filter media on a

regular basis (every 2 years) regardless of water usage, all at the expense of the well owner.

The Minnesota Legislature also enacted legislation in the 2003 session requiring property owners whose property is located within the SWCA in Washington County (and is not served by a public water supply) to notify potential buyers at the time of sale that the property is within a the SWCA (Minnesota Statutes, Chapter 128, Article 1, Section 170).

Long Term Stewardship: The remedy (and institutional controls) require the installation, use and maintenance of GAC filters on private wells that exceed MDH limits until these cleanup standards are achieved throughout the groundwater plume area. MPCA has responsibility for groundwater monitoring and maintenance of the GAC filters installed by MAC and MPCA on the private wells. MPCA's sampling and maintenance schedule is discussed above. An O & M Plan will be developed for all areas of treatment at the Site. Potential new well owners are notified of the ICs by the MDH during the well permitting process which occurs prior to well installation.

V. PROGRESS SINCE LAST REVIEW

Not applicable. This is the first five-year review of the site.

VI. FIVE-YEAR REVIEW PROCESS

Administrative Components

The Five-Year Review was initiated on November 1, 2006. The review components included:

- Community Involvement:
- Document Review:
- Data Review:
- Site Inspection:
- Local Interviews: and
- Five-Year Review Report Development and Review.

The Five-Year Review team included Thomas Williams, EPA's Remedial Project Manager (RPM) for the site and Dan Card, MPCA's Project Leader for the site.

Community Involvement

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Representatives of both Baytown Township and West Lakeland Township, the two main municipalities occupying the SWCA, were notified by a telephone interview that a Five-Year Review was being performed. A public notice of the

Five-Year Review was placed in the January 31st, 2007 issue of the White Bear Press and the February 2nd, 2007 issue of the St. Croix Valley Press. A copy of the public notice is in Appendix B.

Document Review

This Five-Year Review consisted of a review of relevant documents including the ROD, assessment reports, and MPCA staff correspondence. A list of the documents reviewed is presented in Appendix C, Bibliography.

Data Review

Bayport Municipal Wells

In May of 2003, MDH Drinking Water Protection Program staff collected samples from the City of Bayport municipal wells as a part of the regular monitoring of that system. Municipal well locations are shown in Figure 2. Samples from the three City wells were analyzed for VOCs. TCE was detected in Bayport well #2 at a concentration of 1.2 µg/L. Bayport well #2 is located approximately one mile northeast of the two private Franconia aguifer wells that also showed TCE contamination in May of 2003. TCE concentrations in well #2 have increased since it was first detected, at times slightly exceeding the federal MCL for TCE of 5 μg/L. The City's other two wells have also shown low level detections of TCE. The MPCA conducted a FS in May 2004 with the goal of evaluating treatment options for reducing concentrations of TCE in well #2 to 1 µg/L or less on a short-term or long-term basis (Terracon 2004d). Based on the results of the FS, the MPCA and the City of Bayport proposed a permanent treatment system consisting of an air stripping unit that would reduce TCE concentrations of ground water produced by well #2 using aeration. MPCA considered the threat presented to Bayport's municipal water supply by the TCE concentrations as credible enough to warrant an early action; therefore, the air stripping system was adopted as a remedy prior to issuing a proposed remedial action plan and the design process began shortly after review of the FS results and consultation with the City of Bayport. As of Fall 2006, the final design of the treatment system has been completed and construction has begun. Completion of the treatment system is expected in 2007. The MPCA is funding the design and construction of the treatment system through a grant agreement with the City of Bayport.

Primary Source Area Identification

During the winter and spring of 2003, the MPCA conducted several investigations in an attempt to locate the source of the TCE contamination at the Baytown Site. These investigations were conducted at the Lake Elmo Airport, at points west of the airport, and in the City of Lake Elmo in an attempt to determine the source of the contamination and ultimately implement a response action to remediate the TCE at or near the source.

The first round of investigation by the MPCA consisted of the collection of soil gas samples at the locations of three current or former businesses in the City of Lake Elmo identified by the MPCA as possible sources of TCE (Terracon 2003 and 2004c). Soil gas samples were also collected from soil borings at the Lake Elmo Airport, and ground water samples were collected from soil borings drilled near existing monitoring well MW-10B (Figure 4). VOCs were not detected above laboratory reporting limits in the soil gas samples collected at two of the three Lake Elmo locations. At the third location, other VOCs, including chlorobenzenes and vinyl chloride, were detected in one soil gas sample collected near a septic tank. Vinyl chloride is a possible breakdown product of TCE.

Soil probes were drilled for the collection of soil gas samples at seven different potential source areas on the Lake Elmo Airport property. Soil samples from multiple intervals in each probe were screened for organic vapors using a photoionization detector (PID), and one soil gas sample was collected from each boring for analysis for VOCs. TCE was not detected above laboratory reporting limits in the soil gas samples, although various other VOCs, including chlorinated VOCs, were found in some samples. Terracon deemed the information insufficient for determining whether the source of the TCE contamination at the site was the Lake Elmo Airport (Terracon 2003).

Three soil probes were also drilled near monitoring well MW-10B, which is located to the west of the airport near the Union Pacific Railroad tracks (Figure 5). The soil borings were drilled to depths of 48 to 65 feet so that ground water samples could be collected from the glacial till aquifer above the bedrock. TCE was detected at a concentration of 4 µg L in an initial ground water sample collected from probe F-3, located about 400 feet east of MW-10B, and at a concentration of 5.2 µg/L in a duplicate sample.

The second investigation conducted by the MPCA (Terracon 2003) was designed to: 1) delineate the extent of the TCE contamination in the bedrock (Prairie du Chien) formation upgradient of the Lake Elmo Airport; 2) identify potential TCE source areas; and 3) investigate soil gas impacts identified during the first phase of investigation (Terracon 2003). Six soil borings were advanced to depths of up to 120 feet below ground, and temporary monitoring wells were installed for the collection of one or two ground water samples. The first probe (TB-1) was installed in the City of Lake Elmo at the location where VOCs (but not TCE) were found in a soil gas sample. This location is a former service station, and current auto repair business. A ground water sample was collected from the glacial drift formation and analyzed for VOCs. Toluene was detected at a concentration of 1.5 μ g/L; TCE was not found above the laboratory reporting limits.

Three soil borings (TB-4. TB-5, and TB-6) were drilled in the area of the field between the City of Lake Elmo and the Lake Elmo Airport, and completed as

temporary monitoring wells in the upper Prairie du Chien formation. The locations of the borings are shown in Figure 5. A natural gas utility sub-station and a railway line are located in this area. Soil samples from various intervals in each boring were screened for organic vapors using a PID. Organic vapors were detected in soil samples from boring TB-4, and analysis of a ground water sample from TB-4 showed TCE at a concentration of 180 μ g/L. No organic vapors were detected in soil samples from borings TB-5 and TB-6. Analysis of an initial ground water sample from TB-5 indicated a TCE concentration of 9.5 μ g/L; a second sample collected approximately 24 hours later contained a TCE concentration of 8.3 μ g/L. A ground water sample collected from soil boring TB-6 contained a TCE concentration of 92 μ g/L, similar to TCE concentrations found beneath the Lake Elmo Airport.

Two borings were drilled at the Lake Elmo Airport and completed as temporary monitoring wells in the upper Prairie du Chien formation. The first boring, TB-2, was drilled at the north end of the main hangar area. Low levels of organic vapors were detected in soil samples from borings TB-2. Analysis of an initial ground water samples from TB-2 indicated a TCE concentration of 53 $\mu g/L$; a second sample collected approximately 24 hours later contained a TCE concentration of 91 $\mu g/L$. The second boring, TB-3, was drilled near the south end of the main hangar area. No organic vapors were detected in soil samples from this boring. Analysis of an initial water sample from TB-3 indicated a TCE concentration of 35 $\mu g/L$; a second sample collected approximately 24 hours later contained TCE concentration of 44 $\mu g/L$. The detection of TCE at these concentrations in the Prairie du Chien aquifer on the Lake Elmo Airport was not surprising. Based on the work completed, the MPCA's consultant, Terracon, concluded that the results did not identify a source of TCE in the areas investigated.

The MPCA also collected samples from two permanent monitoring wells MW-13 and MW-14 (Figure 5), two private wells, and one unused well in Lake Elmo during this investigation. These wells are located up gradient or side-gradient from the defined plume (and from MW-10B). VOCs were not detected above laboratory detection limits in MW-13 and MW-14, or in the three private wells. Analysis of geologic boring logs from this investigation shows that a depression exists in the surface of the Prairie du Chien formation in the area between MW-10B and MW-13. Two additional soil borings (TB-7 and TB-8) and a monitoring well were installed up gradient of soil borings TB-4 and TB-5 (See Figure 5). A TCE concentration of 6.2 μ g/L was detected in TB-7, which was located more than 500 feet up gradient of TB-5 on the Schiltgen property (11351 Upper 33rd Street N.) (Terracon 2004a). The concentration was detected in the glacial aquifer.

In 2004, the MPCA and Terracon began advancing ground water probes, soil probes, and membrane interface probes (MIP) to the water table to collect ground water and soil samples as necessary to further delineate the extent of the TCE plume in the surficial water table aguifer. Field activities were conducted

from May 24, 2004 through August 6, 2004. The effort focused on the north hangar area, the main hangar area, field area south of the north hangars at the Lake Elmo Airport and properties up gradient of the airport beginning with the Hutchinson/Schiltgen Field Area (See Figure 6). Ground water samples were analyzed on-site at a mobile laboratory for VOC's. Results of the analysis were plotted on a map to determine the approximate extents of the TCE plume. Subsequent probes were then advanced based on analytical results in an attempt to define the plume in the up-gradient direction. Ground water contaminated with TCE was continually encountered as soil probes were advanced and ground water sampled in progressively up gradient locations. The highest concentration of TCE was observed in the Hutchinson/Schiltgen field area at F-22, which contained 9.300 µg/l TCE (Terracon 2004b). F-22 is located along the west edge of the Schiltgen field (See Figure 6).

Based on the results observed during investigation of the Hutchinson/Schiltgen field area, the plume delineation effort was expanded to the Hagberg property located west of the Hutchinson/Schiltgen field area at 11325 Stillwater Boulevard (See Figure 3). Concentrations of TCE generally increased as ground water samples were collected from hydraulically up gradient locations moving west until the west side of the Hagberg property where minimal contamination was observed. The highest levels of TCE observed to date were present at the Hagberg property on the south and east sides of the building at 89.000 µg/L. Despite the detections observed, soil contamination indicative of a source area, was not observed in the upper unsaturated layer.

Based on investigations results, it is believed that the primary source of the TCE contamination is located beneath the Hagberg property. Although the property is currently occupied by Hagberg's Country Market, a grocery store/gasoline station, and retail shops, the property was formerly occupied by the Nielsen Products Company. Advancement of soil probes and installation of monitoring wells conducted beginning from October 2004 and continuing through June 2006 further delineated the location of the TCE source to an area near or beneath the current building on the property (See Figure 3). Soil sampling conducted on the Hagberg Property has not yet succeeded in identifying a discrete TCE source area; however, ground water sampling and continued ground water monitoring conducted from September 2005 to June 2006 has established that the highest concentration of TCE contamination for the Baytown Site (89,000 µg/L in monitoring well MW-18) was located adjacent to and slightly down gradient of the building on the Hagberg Property (Terracon 2005, 2006a, 2006b, and 2006c).

The MPCA conducted a M-FS in 2005 (Terracon 2005b). The M-FS identified two potential systems to contain the ground water contamination to the Hagberg Property and minimize continued down gradient migration of TCE contamination from the source area. The M-FS did not include an evaluation of source contamination reduction. In addition, the report did not include all the evaluation criteria that a normal focused feasibility study would include, hence the term Mini – Feasibility Study. The M-FS researched available technologies for installation

of a barrier wall or alternative system to minimize ground water contaminants from migrating off the site. Potential RAs that were selected for evaluation in this study included: (1) In Situ Permeable Reactive Barrier; and (2) Ground water capture system henceforth referred to as a hydraulic barrier. Based on the information contained in the M-FS, the MPCA proposed the hydraulic barrier method as the recommended remedy for containment of the contamination at the source area. The MPCA's recommended remedy approach was presented in the Proposed Plan issued on March 1, 2007. The MPCA is currently in the processof designing the hydraulic barrier system. After receiving public comments on the proposed remedy, if approved as the containment remedy, it is anticipated that the hydraulic barrier system will be installed by June 30, 2007.

In the Fall of 2006, the MPCA began the process of evaluating technologies for treating and reducing the source area concentrations of TCE on the Hagberg Property. Design of the treatment method is anticipated to be completed by June 2007. It is anticipated that the treatment technology will consist of in-situ chemical or biological treatment of the source zone with nutrient injection. This two phased approach will not only contain the contaminant plume, but will also restore the aquifer through treatment of the source zone. The goal of addressing the source area is to reduce the time necessary for the hydraulic barrier to operate and down gradient private wells to remain on GAC filters.

Site Inspection

A site inspection of a representative GAC filter installed at a single family residence located in the SWCA was conducted on February 1, 2007. The filter assembly was observed by Kurt Schroeder, MPCA Hydrogeologist and the MPCA Contractor, Jason Unkefer. No significant issues were identified. A copy of the site inspection checklist is included in Appendix D.

Interviews

An interview was not conducted with a representative of the responsible party since the only identified responsible party (the MAC) is not considered a significant source. No other community members or residents were interviewed. In general, the awareness of the site in the community seems to be high.

VII. TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents?

YES. The remedy is meeting the RAO of preventing use of TCE contaminated groundwater. GAC filters are installed and maintained on private wells that exceed MDH limits as required by the remedy and there appears to be compliance with institutional controls.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

The original ROD defined the TCE contaminated ground water at the Baytown Site as Operable Unit 1 (OU1) and identified the RAOs. for OU1 as preventing use of ground water contaminated with TCE and prevent further degradation of the aquifer. The selected remedy for preventing exposure to the TCE contamination consisted of the installation and maintenance of GAC filters on private wells that had TCE that exceed the MDH HRL and maintaining a Special Well Construction Advisory for the Baytown Site. Because the primary source of the TCE contamination was not located until late 2004, further degradation of the aguifer could not be prevented as set forth in the ROD; however, as a result of monitoring and investigation conducted subsequent to the signing of the original ROD, the primary source of the TCE contamination has been identified. Furthermore, elevated TCE concentrations have been detected in Bayport municipal water well #2. In order to begin implementing measures that will prevent further degradation of the aquifer by addressing the source area and to prevent exposure to TCE in the Bayport municipal water supply, the definition of additional OUs for the source area and Bayport well #2 will be necessary.

In January 2002, MDH issued a new recommended exposure limit for TCE of 5 µg/L, to be used in place of the existing HRL of 30 µg/L to evaluate drinking water from private wells associated with OU1 (MDH 2002). This action was completed in response to the issuance by EPA of a draft health risk assessment. The ROD states that if the HRL is revised in a direction that results in additional private wells exceeding the revised HRL, filtration systems will be provided for these additional residences. GAC filters have been provided to wells that exceed TCE of 5 µg/L. The ROD for the site will be modified to reflect the new TCE limit as an ARAR.

TCE was detected in Bayport municipal well #2 at a concentration of 1.2 μ g/L. TCE concentrations in well #2 have increased since it was first detected, at times slightly exceeding the Federal MCL for TCE of 5 μ g/L. The MPCA conducted a FS in May 2004 with the goal of evaluating treatment options. Based on the results of the FS, the MPCA and the City of Bayport selected a permanent treatment system consisting of an air stripping unit that would reduce TCE concentrations of ground water produced by well #2 using aeration.

Investigation activities conducted by the MPCA from 2002 to 2006 succeeded in further delineating the contaminant plume and identifying a primary source area. Based on investigation results, it is believed that the primary source of the TCE contamination is located beneath the Hagberg Property at 11325 Stillwater Boulevard in Lake Elmo. Minnesota. Although the property is currently occupied by a grocery store/gasoline station, and retail shops, the property was formerly occupied by a metal working facility. Additional investigation has delineated the location of the TCE source to an area near or beneath the current building on the property.

The MPCA conducted a M-FS in 2005 with the purpose of evaluating potential methods for containing the source area identified at the Hagberg Property (Terracon 2005b). Based on the information contained in the M-FS, the MPCA selected the hydraulic barrier as the proposed method for containment of the source area.

Question C: Has any other information come to light that could question the protectiveness of the remedy?

YES. Additional RAs are being considered including:

- 1. Installation of an air stripper for the Bayport municipal well #2,
- 2. Installation of a hydraulic barrier to contain the source area, and
- 3. Treatment of the source zone.

VIII. ISSUES

TABLE 2: Issues

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
1. New operable units are necessary.	N	Y
2. New exposure limit for TCF:	Y	Υ
3. TCE contamination in Bayport municipal well.	Y	Y
4. Primary source area identified.	N	Y
5. A contamment method for the source has been proposed	N	Y
6. Long-term stewardship	N	Y

IX. RECOMMENDATIONS

TABLE 3: Recommendations and Follow-Up Actions

Issue	Issues	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness	
Number						Current	Future
1.	New operable units are necessary.	Conduct remedy decision process to address new operable units.	MPCA/EPA	MPCA/EPA	June 30, 2007	N	Y
2.	New exposure limit for TCE.	Modify the ROD to reflect the new exposure limit for TCE.	MPCA/EPA	MPCA/EPA	June 30, 2007	Υ	Υ
3.	TCE contamination in Bayport municipal well.	Identify the treatment system currently being installed on the Bayport well as an early action and select a final remedy through the remedy decision process.	MPCA/City of Bayport	MPCAJEPA	June 30, 2007	Y	Ÿ
4.	Primary source area identified.	Conduct an FS and through the remedy decision process, select a method for treating the source zone. Once the final method is selected, Design and construct a treatment zone.	MPCA	MPCA/EPA	June 30, 2008	N	Y
5.	A containment method for the source has been proposed.	Complete the remedy decision process for selection of a containment method for the source area.	MPCA/City of Bayport/	MPCA/EPA	June 30, 2007	N	Y
6.	Update O&M Plan to address all treatment areas and to ensure long-term stewardship that includes	Update O & M Plan	MPCA	MPCA	MPCA	N	Y
	maintaining and monitoring effective ICs.						

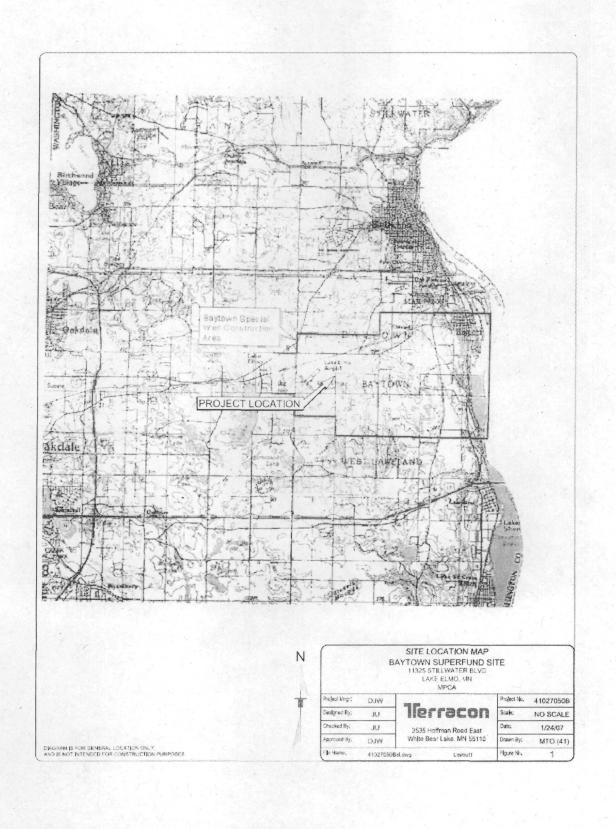
X. PROTECTIVENESS STATEMENT

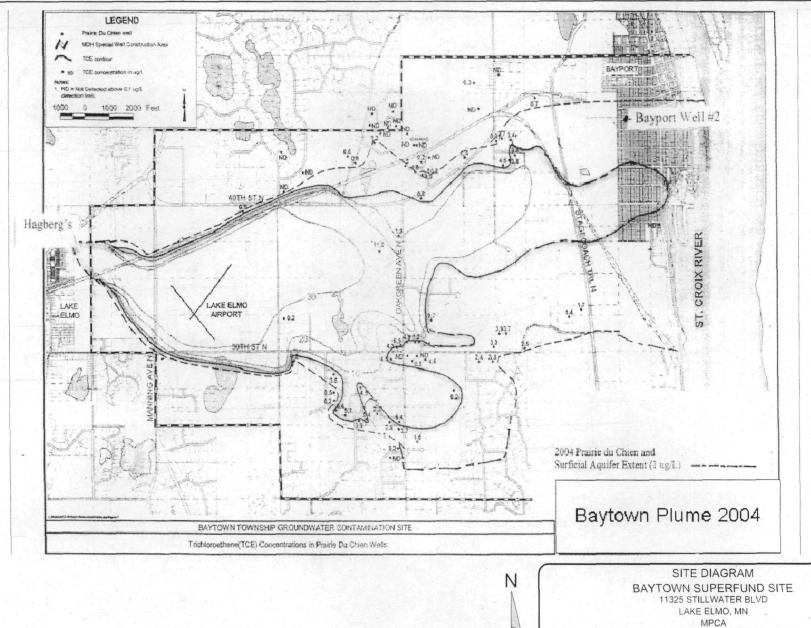
The remedy is functioning as intended and is protective of human health and the environment in the short-term because GAC filters are installed and maintained on private wells exceeding MDH limits as required under township ordinance or as authorized by the MPCA. Compliance with institutional controls and the use of GAC filters on private wells that exceed MDH limits are necessary until the groundwater achieves MDH limits throughout the plume. Long-term protectiveness will be achieved when source areas are addressed and MDH limits are achieved throughout the plume.

XI. NEXT REVIEW

The next five-year review for the Baytown Township Ground Water Plume Superfund Site is required five years from the date of this review.

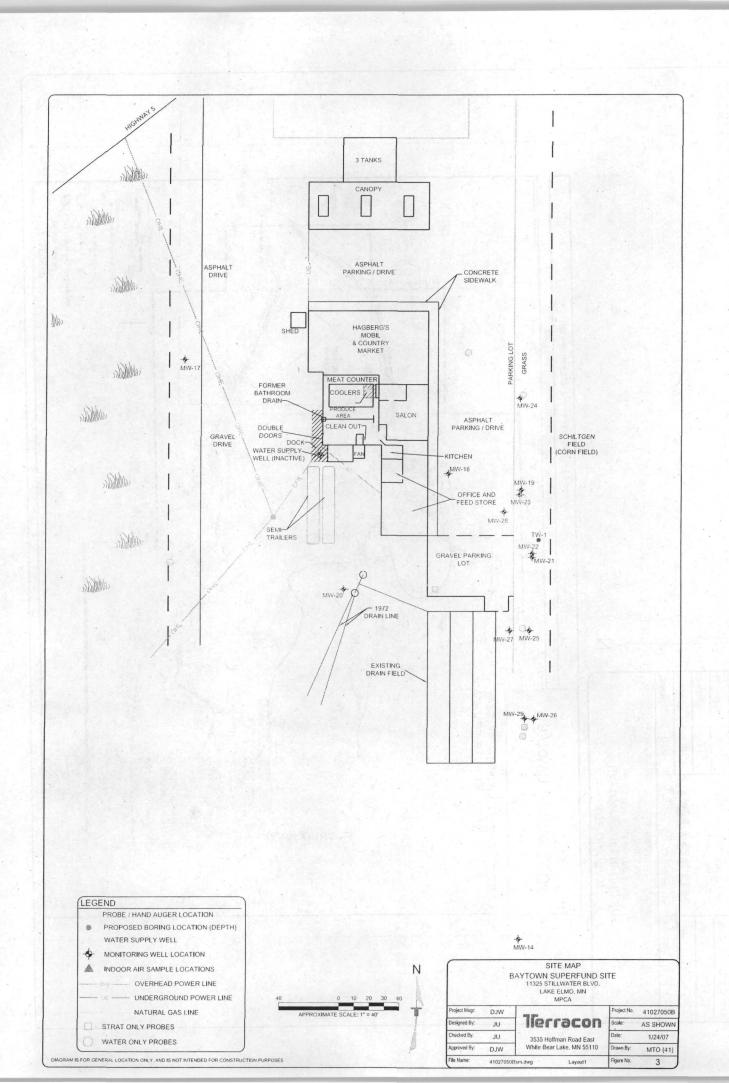
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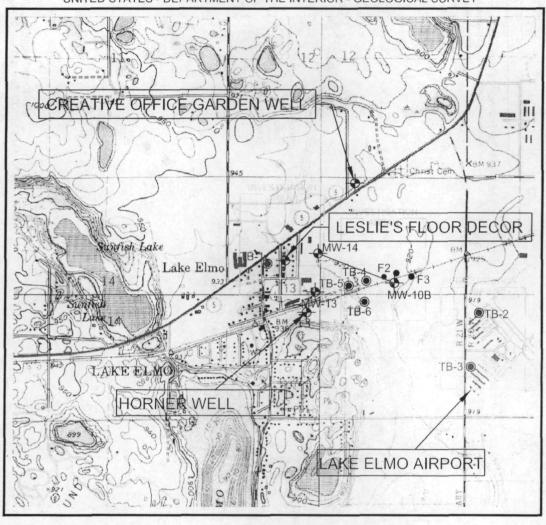


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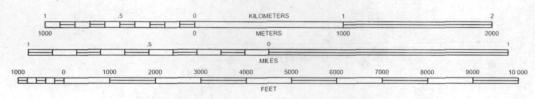
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UNITED STATES - DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY



SCALE 1:24 000



WHITE BEAR LAKE EAST QUADRANGLE

MINNESOTA - WASHINGTON COUNTY 7.5 MINUTE SERIES (TOPOGRAPHIC)

LEGEND

- MONITORING WELL LOCATION
- SOIL PROBE LOCATION
 - SOIL BORING LOCATION



INVESTIGATION NORTHWEST OF THE LAKE ELMO AIRPORT

BAYTOWN SUPERFUND SITE ADDITIONAL SOURCE INVESTIGATION FOLLOW-UP REPORT LAKE ELMO, MN MPCA

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Checked By:	JU	3535 Hoffman Road East
Approved By:	D.IW	White Bear Lake, MN 55110

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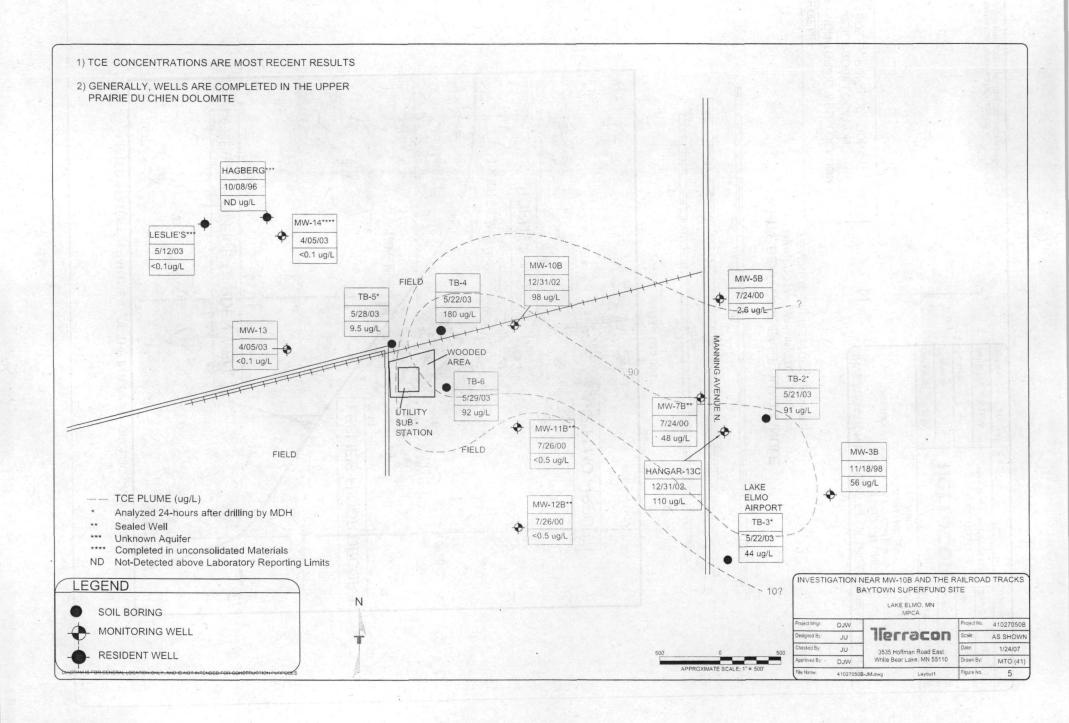
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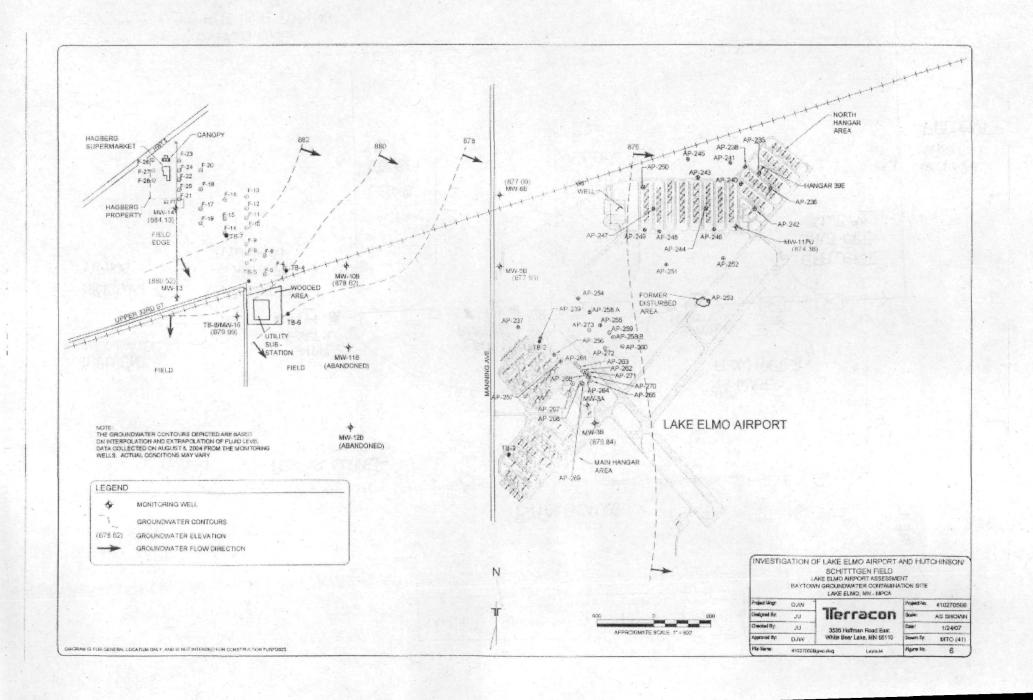
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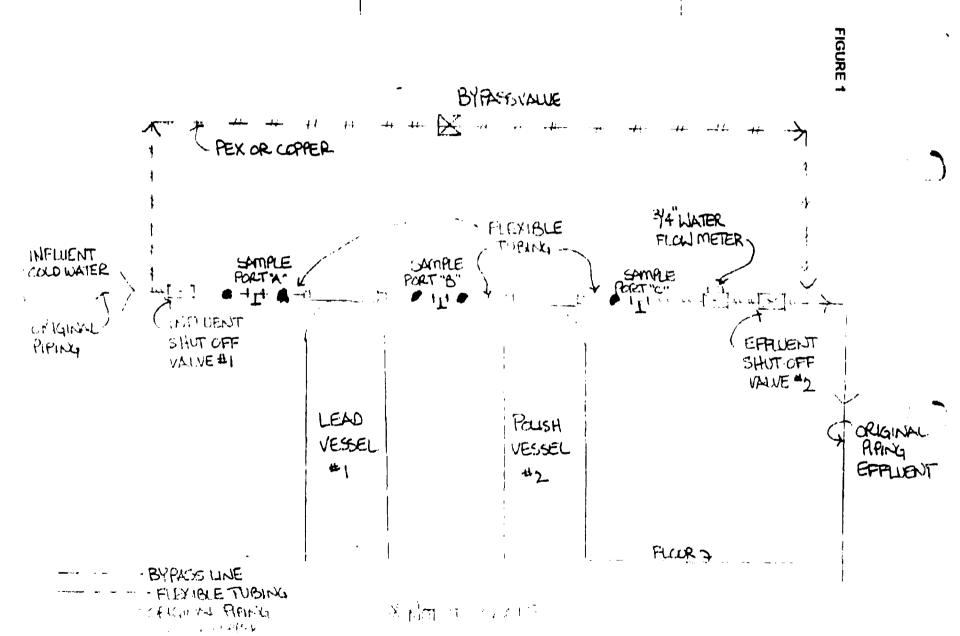
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DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES







APPENDIX A

1-16: Buytain LEGAL

ORDINANCE NO: 38

AN ORDINANCE AMENDING ORDINANCE 36

AN ORDINANCE OF THE TOWN OF BAYTOWN WASHINGTON COUNTY, MINNESOTA ESTABLISHING REGULATIONS FOR THE MAINTENANCE OF WELL WATER TREATMENT IN THE SPECIAL WELL CONSTRUCTION AREA

The Town Board of the Town of Baytown does ordain:

1. PURPOSE. The purpose of this Ordinance is to monitor wells within the Town of Baytown's portion of the Baytown-West Lakeland Special Well Construction Area (SWCA), to identify those wells at or exceeding 0.5 µg/L of TCE or CCL4, to ensure whole house GAC filter systems are installed for these wells and to establish requirements for monitoring, maintenance and repairs of GAC filter systems. This Ordinance will not apply to wells not intended for human consumption such as monitoring wells, irrigation wells, to community public water supply wells, or to wells on property that was platted prior to April 9, 2002.

2. **DEFINITIONS.**

- a. <u>CCL4 means</u>: carbon tetrachloride. The MDH Health Risk Limit for CCL4 is 3ug/l; however, for added protection, this Ordinance defines the action level for CCL4 at 0.5 ug/l.
- b. <u>EPA means</u>: the United States Environmental Protection Agency.
- c. <u>GAC Filter System means</u>: a granular activated carbon system suitable to recover trichloroethene (TCE) and CCL4 from well water sufficient to meet MDH interim exposure limit or MDH Health Risk Limit.
- d. <u>MDH means:</u> the Minnesota Department of Health.
- e. <u>SWCA means</u>: areas within the Town that are within the boundaries of the Special Well Construction Area as established by the Minnesota Department of Health ("MDH") and as changed, modified or expanded from time to time by MDH.
- f. TCE means: Trichloroethene.
 - The MDH interim exposure limit for TCE is 5 μ g/l, however, for added protection, this Ordinance defines the action level for TCE at 0.5 μ g/l.
- g. <u>VOC means:</u> volatile organic compounds.

- 3. GAC FILTER SYSTEM SPECIFICATIONS: All GAC filter systems must meet or exceed the following specifications:
 - a. Two GAC filter system vessels must be connected in series so that all water flows through one vessel first and then through the second vessel. Vessels shall not be equipped to provide automatic backwashing.
 - b. Each vessel must have continuously-wound high-strength fiberglass outer shell and a non-corrosive high density polyethylene inner shell and a black rubber base; minimum carbon capacity of 90 pounds; approximate dimensions of 15-inch diameter by 4-foot height; minimum pressure rating of 150 psi; rated flow rate of up to 10 gpm; rated pressure drop of less than 4 psi at 10 gpm (with new carbon). Inside the vessel, the outlet of the vessel head shall be fitted with a 1-inch diameter PVC down tube that shall extend to the bottom of the vessel. An appropriately sized screen basket must have been installed on the bottom of the down tube.
 - c. Carbon specification: 8 x 30 mesh virgin granular activated carbon with minimum iodine number of 1,000. Carbon must be carbon that is manufactured entirely from raw materials and not from regeneration of any previously used carbon.
 - d. Piping: copper and PVC braided tubing; cam-lock-quick-connect fittings used with PVC tubing to facilitate carbon filter change-out; piping diameter equal to existing piping at installation location, except 3.4 inch is minimum size; minimum pressure rating of 125 psi.
 - e. Valves: brass; ball type providing watertight shut-off; minimum pressure rating of 150 psi; size to match installed piping diameter; valve handle orientated for ease of operation.
 - f. Sample Ports: brass; ball type providing watertight shut-off; minimum pressure rating of 150 psi; valve handle orientated for ease of operation. Alternatively, the sample ports may be integral to vessel head but in either case, the outlet of the sample port must be directed downward towards the floor.
 - g. Flow Meter: Badger RCDL Series disc meter, Model M25 with brass housing, or equal and installed upstream of the lead carbon filter orientated for ease of readability.
 - h. Sample ports must be located before and between the two filter vessels.
 - i. A bypass valve must not be installed around the filter vessels.
- 4. GAC FILTER SYSTEM MAINTENANCE AND CHANGE-OUT: The GAC Filter system must be changed out using the following standards:
 - a. Verify that there are no appliances running or other active water uses occurring.

- b. Close the inlet and outlet valves for the GAC filter system.
- c. Disconnect and remove the lead GAC filter system (vessel with spent carbon).
- d. Disconnect the second GAC filter system and reinstall it in the lead position.
- e. Replace the used vessel with a new or reused vessel filled with at least 90 pounds of virgin GAC meeting the same specification as cited for new GAC filter systems under this Ordinance. If the vessel is reused, it must first have been properly rinsed and disinfected prior to refilling with carbon.
- f. Install the replacement GAC filter in the secondary position.
- g. Re-open the inlet and outlet valves for the GAC filter system and check for water leaks. Repair any observed water leaks immediately.
- h. Return the GAC filter with spent carbon to the vendor for proper disposal of the carbon in accordance with applicable laws and regulations.
- 5. GAC FILTER SYSTEMS INSTALLATION: A GAC filter system may only be installed under the supervision of a licensed plumber or licensed water conditioning contractor. A GAC filter system must be installed at a point of entry on the well supply system that will provide for treatment of all water that travels to faucets and fixtures inside the house and other potable outlets on the system. After each system is installed, it must be filled and pressurized to verify that there are no water leaks. Any water leaks observed must be immediately repaired.

An initial "verification" water sample must be collected from a sampling point between the two filter vessels by a neutral third party such as laboratory staff or a consultant under authority of the Town, following installation, and tested for VOCs by a laboratory certified by MDH under Minn. Rule §4740.2040 for analysis of VOCs. The analysis must meet the requirements of MDH Method 468 for VOC analysis or equivalent methods promulgated by the EPA in methods 502.2, 524.2 or 551.1. In the unlikely event that any TCE or CCL4 breakthrough is detected, the installer must determine the cause of the detection. The water supply may not be used until the GAC filter system is functioning properly.

6. <u>NEW WELL CONSTRUCTION.</u>

a. New well construction is regulated by MDH pursuant to Minnesota Statutes, Chapter 103I and Minnesota Rules, Chapter 4725 and may only be constructed with the written approval of MDH.

7. WELL SAMPLING REQUIREMENTS WITHIN THE SWCA.

a. Within six (6) months of the effective date of this Ordinance each well owner must obtain, at the owner's expense, a VOC test on the well water and forward the test results to the Town Clerk. The VOC "standard testing method" must have

a detection limit of no greater than 0.5 ug/l for both TCE and CCL4. This test and periodic maintenance tests required by Section 8 must be completed by a laboratory certified by MDH under Minn. Rules §4740.2040 for analysis of VOCs. If, however, the MDH determines, in writing, based upon historic sampling, that a well will likely not be contaminated, the sampling described herein need not occur.

- b. A written notice must be sent by the Town Clerk to any owner that has not complied with the test required by Section 7.a informing the owner of the delinquency. If the owner does not comply within sixty (60) days of the Notice, the Town is authorized to contract with a consultant trained in sample collection procedures and a MDH certified laboratory to conduct an analysis of the samples. In this event, the Town is authorized to spread the costs associated with testing as a service charge under Minn. Stat. §429.101, and to certify the amount as a special assessment against the property, payable in a single installment.
- c. The Town or its authorized agent will forward the test results to the MDH for analysis. Based upon the analysis provided by MDH:
 - Wells with TCE or CCL4 concentrations greater than or equal to 0.5 μg/l will be allowed, provided that within sixty (60) days a "whole house" granular activated carbon (GAC) filter is installed then maintained and changed out according to the requirements of this Ordinance. If it is a newly constructed house, the Certificate of Occupancy will not be issued until the GAC filter has been installed and demonstrated to work in accordance with Section 5 of this Ordinance.
 - (ii) Wells with TCE or CCL4 concentrations less than 0.5 μg/l may be used without GAC filter system, however, each well must be sampled for VOCs every two years, and the well owner must submit test results to the Town Clerk at that time.. If TCE or CCL4 concentrations reach or exceed 0.5 μg/l a "whole house" GAC filter system must be installed, maintained and changed out by the well owner according to the requirements of this Ordinance.
 - (iii) Even if a test reveals that a concentration of 0.5 ug/l TCE or CCL4 has not been reached, but is likely to be reached in the near future because of predicted groundwater flow patterns and contaminant concentration increases in the area of the property, annual tests may be required, if recommended by MDH. Written notice must be sent by the Town to the owner advising of this requirement.
 - (iv) The testing required by this Section c is mandatory, however, if more frequent testing is done by a well owner voluntarily at lesser intervals, copies of the tests must be submitted to the Town Clerk.
- d. For an existing well that is being monitored by The MPCA, or maintains a "whole house" GAC Filter system that is regularly monitored under their auspices, the owner or the owner's agent need not comply with Sections 7.a and b. Written

evidence of this status must, however, be submitted to the Town Clerk at least every two years.

- 8. <u>MAINTENANCE REQUIREMENTS</u>. Each individual GAC filter system currently existing, as well as those installed under this Ordinance, must be operated and maintained according to the provisions of this Section.
 - a. The GAC filter system must be maintained and changed out in accordance with the requirements of this Ordinance.
 - b. The owner of any GAC filter system or the owner's agent shall regularly, but in no case less frequently than every two years from the date of the prior test, have the GAC filter system inspected, tested and changed out by a licensed plumber or licensed water conditioning contractor. A sample must be taken from a sampling point between the two filter vessels immediately prior to changing out the vessels. Copies of all analytical test results must be provided to the Town Clerk or an agent designated by the Town to collect samples and compile data. The Town Clerk or designated agent must then distribute all analytical test results and data to the MPCA, Washington County Department of Health and MDH.
 - c. A written Notice must be sent by the Town Clerk to any owner that has not complied with the test required by Section 8.b informing the owner of the delinquency. If the owner does not comply within sixty (60) days of the Notice the Town is authorized to contract with a licensed testing agent to complete the test. In this event, the Town is authorized to assess the costs associated with testing as a service charge under Minn. Stat. §429.101, and to certify the amount as a special assessment against the property, payable in a single installment.
 - d. On property platted prior to April 9, 2002 an existing well that is being monitored by the MPCA, and a "whole house" GAC Filter system that is regularly maintained and changed out under their auspices, the owner or the owner's agent need not comply with Section 8.b. Written evidence of this status must, however, be provided to the Town Clerk at least every two years.
 - e. The owner or occupant of a property is responsible to provide access, at reasonable times, to the Town, or its agents, for the purpose of performing inspections and tests required under this Ordinance.

9. **ADMINISTRATION**.

a. To enforce this Ordinance the Town or its agents may enter a building, property or place for the purpose of sampling well water where there is reason to suspect a GAC filter system is failing to properly function, has been tampered with or modified, or a well exists with TCE concentrations greater than or equal to 0.5 μg/l or with CCL4 concentration of greater than or equal to 0.5 μg/l. All samples must be taken by a technician trained in the collection of samples and the samples must be analyzed by a MDH-certified laboratory.

- b. Prior to executing the Town's right of entry, the Town Attorney, upon approval of the Town Board, must obtain an Administrative Search Warrant from the District Court of Washington County for that purpose. The Town Attorney must also make reasonable efforts to discuss entry with any owner in order that any entry without consent be avoided if reasonably possible.
- c. If, in the opinion of the Town Board, compliance with this Ordinance is not achieved and, therefore, the health and safety of Town residents is at risk, the Town Board is authorized to contract with a qualified consultant to act as the Town's agent with authority to administer this Ordinance.
- d. The Town Board is also authorized to enter into joint power agreements with other governmental units or State agencies for the purpose of administering the provisions of this Ordinance.
- 10. **SAVING.** In all other ways the ordinances of the Town will remain in effect.

11. **EFFECTIVE DATE.** This Ordinance will be in full force and effect from and after its passage and publication according to law.

Enacted by the Town Board of the Town of Baytown this 2 day of August 2005

TOWN OF BAYTOWN

Kent Grandlienard, Chair

Boarc of Supervisors

Pauline Huonder, Town Clerk

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network maps; alternative site analysis; lists of other nearby telecommunication facilities; or facility design alternatives for the proposed tower.

- 14.14.10.1(E) The West Lakeland Township Board is explicitly authorized to employ on behalf of the County, an independent technical expert to review technical materials submitted by the applicant or to prepare any technical materials required but not submitted by the applicant. The applicant shall pay the costs of said review and/or independent analysis. Any proprietary information disclosed to the Township expert hired shall remain non-public and subject to the terms and conditions of a property executed non-disclosure agreement.
- 14.14.11 APPLICATION EXISTING TOWER/NEW ANTENNA. In the event that an application is only to add a new antenna to an existing tower or structure, the requirements as delineated under Section 14.14.10.1(A)6 and 14.14.10.1(B) shall not apply.

14.14.12 EXEMPTION FOR TOWERS.

14.14.12(1) Ham Radio Operator Towers. Ham radio towers designed for personal use are exempt from the foregoing regulations if their only use is for the personal enjoyment of the owner. Any commercial use of such tower shall require it to be subject to the foregoing regulations.

14.15. WIND ENERGY CONVERSION SYSTEMS.

- 14.15.01 PURPOSE AND INTENT. The purpose is to establish regulations for wind energy conversion systems. A wind energy conversion system is defined as one (1) tower with rotors and motors with one conversion generator.
 - 14.15.01(1) Required Permits, A Conditional Use Permit is required for a wind energy conversion system in all zoning districts.
 - 14.15.01(2) Other Requirements. Wind Energy Conversion Systems shall comply with all rules and regulations of Federal, State, County, and local agencies.
 - 14.15.01(3) Performance Standards. Wind Energy conversion systems must comply with the following standards:
 - 14.15.01.3(A) If the wind energy conversion system is 20 feet or less in height, it may be located on a parcel 2.5 acres or greater in size, subject to the following standards.
 - 14.15.01.3(B) A wind energy conversion system greater than 20 feet must be located on a parcel at least ten (10) acres in size subject to the following standards.
 - 14.15.01.3(C) One wind energy conversion system is permitted on a parcel.
 - 14.15.01.3(D) The maximum height of a wind energy conversion system shall be 100 feet. The system height shall be measured from the

- base of the tower to the highest possible extension of the rotor.
- 14.15.01.3(E) No lights, flashers, reflectors, or any other illuminated devices shall be affixed to the wind energy conversion system.
- 14.15.01.3(F) The wind energy conversion system shall be located so as to have the least impact on adjoining parcels.
- 14.15.01.3(G) No wind energy conversion system shall be located within any required setback and shall have a minimum setback from any property line a distance equal to the height of the tower.
- 14.15.01.3(H) Rotors shall not exceed 26 feet in diameter and shall have a clearance of 30 feet over any tree structure. Each wind conversion system shall be equipped with both a manual and automatic breaking device capable of stopping the wind energy conversion system in high winds (40 MPH or greater).
- 14.15.01.3(I) All State, County, and local noise standards must be met. Applicable electrical permits/inspections must be obtained.
- 14.15.01.3(J) To prevent unauthorized climbing, wind energy conversion system towers must comply with one of the following provisions:
 - 1 Tower climbing apparatus shall not be located within 12 feet of the ground
 - 2 A locked anti-climb device shall be installed on the tower.
 - 3 A protective fence at least 6 feet in height.
- 14.15.01.3(K) The color of the structure shall be either gray or off-white.
- 14.15.01.3(L) In the event of permit revocation or if the wind generator is no longer used, the wind generator must be removed and the site restored to its original condition within 120 days.

15 SPECIAL WELL AREAS.

15.01. PURPOSE AND INTENT.

The purpose is to monitor wells with the Town of West Lakeland's portion of the Baytown-West Lakeland Special Well Construction Area (SWCA) to identify those wells at or exceeding 5-ug/l of TCE, to ensure whole house GAC treatment systems are installed for these wells and to establish requirements for monitoring, maintenance and repairs of GAC filters. This Ordinance will not apply to wells not intended for human consumption such as monitoring wells, imgation wells, to community public water supply wells, or to wells on property that was platted prior to April 9, 2002.

15.02. DEFINITIONS

15.02.01 CCL4 MEANS: Carbon Tetrachloride.

- **15.02.02 EPA MEANS:** The United States Environmental Protection Agency
- 15.02.03 GAC FILTER SYSTEM MEANS: a granular activated carbon system suitable to recover trichloroethlene (TEC) and CCL4 from well water

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- sufficient to meet MDH interim exposure limit or MDH Health Risk Limit
- 15.02.04 NIDH MEANS: the Minnesota Department of Health
- 15.02.05 SWCA MEANS: areas within the Town that are within the boundaries of the Special Well Construction Area boundary as established by the Minnesota Department of Health (MDH) and as changed, modified or expanded from time to time by MDH.
- 15.02.06 TCE MEANS: Trichloroethene
- 15.02.07 VOC MEANS: volatile organic compounds
- 15.02.08 TOWN BOARD MEANS: the Town Board of the Town of West Lakeland
- 15.03. GAC FILTER SYSTEM SPECIFICATIONS
 - 15.03.01 All GAC filter systems meet or exceed the following specifications
 - 15.03.02 Two GAC vessels must be connected in series so that all water flows through one vessel first and then through the second vessel. Vessels shall not be equipped to provide automatic backwashing.
 - 15.03.03 Each vessel must have continuously wound highstrength polyethylene inner shell and a black rubber
 base; minimum carbon capacity of 90 pounds;
 approximate dimension of 15 inch diameter by 4 foot
 height; minimum pressure rating of 150 psi; rated flow
 rate of up to 10 gpm; rated pressure drop of less than4
 psi at 10 gpm (with new carbon). Inside the vessel, the
 outlet of the vessel head shell be fitted with a 1-inch
 diameter pvc down tube that shall extend to the bottom
 of the vessel. An appropriately sized screen basket
 must be installed at the bottom of the down tube.
 - 15.03.04 CARBON SPECIFICATION: 8x30 mesh virgin granular activated carbon with minimum iodine number of 1,000. Carbon must be carbon that is manufactured entirely from raw materials and not from regeneration of any previously used carbon.
 - 15.03.04(1) Piping: copper and PVC braided tubing: ma lock quick connect fittings used with PVC tubing to facilitate carbon filter change-out; piping diameter equal to existing piping at installation location, except % inch is minimum size; minimum pressure rating of 125 psi.
 - 15.03.04(2) Valves: brass; ball type providing watertight shut-off; minimum pressure rating of 150 psi; valve handle orientated for ease of operation.
 - 15.03.04(3) Sample Ports: brass; ball type providing waterlight shut-off; minimum pressure rating of 150 pai; valve handle oriented for ease of operation. Alternatively, the sample ports may be integral to vessel head but in either case, the outlet of the sample port must be directed toward the floor.
 - 15.03.05 FLOW METER: badger rodl series disc meter, model m25 with brass housing, or equal and installed upstream of the lead carbon litter orientated for ease of readability.
- 15.04. GAC FILTER MAINTENANCE AND CHANGE OUT

- 15.04.01 The GAC filter must be changed out using the following standards:
 - 15.04.01(1) Verify that there are no appliances running or other active water uses occurring.
 - 15.04.01(2) Close the inlet and outlet valves for the GAC filter system.
 - 15.04.01(3) Disconnect and remove the lead GAC filter (vessel with spent carbon)
 - 15.04.01(4) Disconnect the second GAC filter and reinstall it in the lead position.
 - 15.04.01(5) Move the GAC filter with the spent carbonoutside for removal of the spent carbon by specialized on-site carbon change-out equipment. The equipment should utilize high vacuum equipment for the extraction of the spent carbon with piping that directly transfers the spent carbon into a container that is suitable for spent carbon transport.
 - 15.04.01(6) Rinse the vessel, disinfect, and refill with at least 90 pounds of virgin GAC meeting the same specification as cited for new GAC filter systems under this ordinance. Containerize the rinse/disinfect ion water for transport to licensed facility for proper disposal.
 - 15.04.01(7) Install the refilled GAC filter in the secondary position.
 - 15.04.01(8) Re-open the inlet and outlet valves for the GAC filter system and check for water leaks. Repair any observed water leaks immediately.

15.05. GAC FILTER SYSTEMS INSTALLATION

- 15.05.01 A GAC may only be installed under the supervision of a licensed plumber or licensed water conditioning contractor. A GAC system must be installed at a point of entry on the well supply system that will provide for treatment of all water that travels to faucets and futures inside the home and other potable outlets on the system. After each system is installed, it must be filled and pressurized to verify that there are no water leaks. Any water leaks observed must be immediately repaired.
- 15.05.02 An initial "verification" water sample must be collected from a sampling point between the two filter vessels by a neutral third party such as laboratory staff or consultant under authority of the town, following installation, and tested for VOCs by a laboratory certified by MDH under Minn rule 4740.2040 for analysis of VOCs. The analysis must meet the requirements promulgated by the EPA in methods 502.2, 524.2, or 551.1. In the unlikely event that any TCE or CCL4 breakthrough is detected, the installer must determine the cause of the detection. The water supply may not be used until the GAC is functioning properly.

15.06. NEW WELL CONSTRUCTION

15 06.01(1) New well construction is regulated by MDH pursuant to Minnesota Statutes, Chapter 1031 and Minnesota Rules, Chapter 4725 and may only be constructed with the written approval of MDH.

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15.07. WELL SAMPLING REQUIREMENTS WITHIN THE SWCA.

- 15.07.01 Within six (6) months of the effective date of this ordinance each well owner must obtain, at the owner's expense, a VOC test on the well water and forward the test results to the town clerk. This test and periodic maintenance tests required by section 8 must be completed by a laboratory certified by MDH under Minn. Rules 4740.2040 for analysis of VOCs. If, however, the MDH determines, in writing, based on historic sampling, that a well will likely not be contaminated, the sampling described herein need not occur.
- 15.07.02 A written notice must be sent by the town clerk to any owner that has not complied with the test required by section 7.a informing the owner of the delinquency. If the owner does not comply within sixty (60) days of the notice, the Town is authorized to contract with a consultant trained in sample collection procedures and a MDH certified laboratory to conduct an analysis of the samples. In this event, the town is authorized to spread the costs associated with testing as a service charge under Minn statute 429.101, and to certify the amount as a special assessment against the property, payable in a single installment.
- 15.07.03 The Town or its authorized agent will forward the test results to the MDH for analysis. Based upon the analysis provided by MDH:
 - 15.07.03(1) Wells with TCE concentrations equal to or greater than 5 ug/l or CCL4 concentrations equal to or grater than 3 ug/l will be allowed, provided that within sixty (60) days a "whole house" granular activated carbon (GAC) filters are installed, maintained and changed out by the well owner according to the requirements of this ordinance.
 - 15.07.03(2) Wells with TCE concentrations less than 5 ug/l or CCL4 concentrations less than 3 ug/l may be used without GAC filters, however, a VOC test of the well's status must be submitted to the Town Clerk at least every two years, according the rules set forth in Section 8.b. If TCE concentrations reach or exceed 5 ug/l a "whole house" GAC filter must be installed, maintained and changed out by the well owner according to the requirements of this ordinance.
 - 15.07.03(3) If, however, a test reveals that a MDH interim exposure limit or health risk limit of TCE or CCL4 has not been reached, but because of predictive patterns an increases, it s likely that in the new future to be reached, and if recommended by MDH, annual tests may be required. Written notice must be sent by the Town to the owner advising of this requirement.
 - 15.07.03(4) The testing required by this section is mandatory, however, if more frequent testing is done by a well owner voluntarily at lesser intervals, copies of the tests must be submitted to the Town Clerk.
- 15.07.04 For an existing well that is being monitored by the Metropolitan Airports commission through their consultant Wenck Associates or by an authorized State

agency, or maintains a "whole home" GAC filter that is regularly monitored under their auspices, the owner or the owner's agent need not comply with sections 7(1) or 7(b). Written evidence of this status must, however, be submitted to the Town clerk every two years.

15.08. MAINTENANCE REQUIREMENTS.

- 15.08.01 Each individual GAC currently existing, as well as those installed under this ordinance, must be operated and maintained according to the provisions of this section.
 - 15.08.01(1) The GAC must be maintained and changed out in accordance with the requirements of this ordinance.
 - 15.08.01(2) The owner of any GAC or the owner's agent shall regularly, but in no case less frequently than every two years from the date of the prior test, have the GAC inspected, tested and changed out by a licensed plumber or licensed water conditioning contractor. A sample must be taken from a sampling point between the two filter vessels. Copies of all analytical test results must be provided to the Town Clerk or an agent designated by the Town to collect samples and compile data. The Town Clerk or designated agent must then distribute all analytical test results and data to the MPCA, Washington County Department of Health, MDH and Metropolitan Airports Commission, through their consultant Wenck Associates.
 - 15.08.01(3) A written notice must be sent by the Town Clerk to any owner that has not complied with the test required by Section 8(2) informing the owner of the delinquency. If the owner does not comply within sixty (60) days of the notice, the Town is authorized to contract with a licensed testing agent to complete the test. In this event, the Town is authorized to spread the costs associated with testing as a service charge under Minn Statute 429.101, and to certify the amount as a special assessment against the property, payable in a single installment
 - 15.08.01(4) If an existing well that is being monitored by the Metropolitan Airports Commission through their consultants Wenck Associates or by an authorized State agency, or maintains a "whole home" GAC filter that is regularly maintained and changed out under their auspices, the owner or the owner's agent need not comply with Section 8(2). Written evidence of this status must, however, be provided to the Town Clerk at least every two years.
 - 15.08.01(5) The owner or occupant of a property is responsible to provide access, at reasonable times, to the Town or its agents, for the purpose of performing inspections and tests required under this ordinance.

15.09. ADMINISTRATION

15.09.01(1) To enforce this ordinance, the Town or its agents may enter a building, property or place for the purpose of sampling well water where there is reason to suspect a GAC is failing to property

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function, has been tampered with or modified, or a well exists with TCE concentrations grater than 5 ug/l or with CCL4 concentration of greater than 3 ug/l. All samples must be taken by a technician trained in the collection of samples and the samples must be analyzed by a MDH-certified laboratory.

- 15.09.01(2) Prior to executing the Town's right of entry, the Town Attorney, upon approval of the Town Board, must obtain an Administrative Search Warrant from the District Court of Washington County for that purpose. The Town Attorney must also make reasonable efforts to discuss entry with any owner in order that any entry with out consent be avoided if reasonably possible.
- 15.09.01(3) If in the opinion of the Town Board, compliance with this ordinance is not achieved and, therefore, the health and safety of the Town residents is at risk, the Town Board is authorized to contract with a qualified consultant to act as the Town's agent with authority to administer this continuous.
- 15.09.01(4) The Town Board is also authorized to enter into joint power agreements with other governmental units or State agencies for the purpose of administering the provisions of this ordinance.

15.10. PAYMENT TO TOWNSHIP.

15.10.01 In order to defray the costs to the town of administering the provisions of this section, any applicant for a building permit for a new residence within the SWSA shall pay to the town a fee of \$_____ at the time of application for the building permit. The amount of the fee may be modified by the town board from time to time by resolution to reflect that actual costs to the town of administering the provisions of this code section.

15.11. SAVING

15.11.01 In all other ways the ordinances of the town will remain in effect. Statutory Language - Chapter 128, Article 1, Section 170

Sec. 170 [WELL DISCLOSURE IN WASHINGTON COUNTY.]

Before signing an agreement to sell or transfer real property in Washington County that is not served by a municipal water system, the seller must state in writing to the buyer whether, to the seller's knowledge, the property is located within a special well construction area designated by the commissioner of health under Minnesota Rules, part 4725.3650. If the disclosure under Minnesota Statutes, section 103I.235, subdivision 1, paragraph (a), states that there is an unsealed well on the property, the disclosure required under this clause must be made regardless of whether the property is served by a municipal water system.

[EFFECTIVE DATE.] This section is effective the day after the governing body of Washington County and its chief clerical officer timely complete their compliance with Minnesota Statutes, section 645.021, subdivision 2 and 3. It applies to transactions for which purchase agreements are entered into after that date.

APPENDIX B



Announcement of a Five-Year Review of the Baytown Township Ground Water Contamination Superfund Site

Baytown Township, Washington County, Minnesota

The Minnesota Pollution Control Agency is conducting a five-year review of the remedy documented in the 2000 Record of Decision for the Baytown Township Groundwater Superfund Site. The U.S. Environmental Protection Agency (EPA) is participating in the review and the MPCA is the lead agency conducting the review. This periodic review of the remedial action is required where hazardous substances or contaminants remain, which at this site includes trichloroethylene (TCE) from a previous machine shop. The review helps ensure that the selected cleanup plan continues to be protective of human health and the environment. This review is scheduled to be completed by March 30, 2007. The Baytown Superfund Site is defined by the Special Well Construction Area and includes portions of eastern Lake Elmo, the portion of Baytown Township at and east of the Lake Elmo Airport, northern West Lakeland Township, and the southern two-thirds of Bayport.

The review will evaluate the overall effectiveness of the existing remedy which includes:

- o Monitoring and sampling of private water supply wells,
- Installation, change-out, maintenance and removal of granular activated carbon filter systems on private wells,
- Effectiveness of the Special Well Construction Area as an institutional control

Additional work is being planned for the site. A proposed plan will be presented to the public on March 12 at Oak-Land Junior High. An open house will be held from 5-7 p.m. and a presentation given at 7 p.m. The planned work includes a treatment system on Bayport municipal well #2 and treatment of contaminated groundwater at the primary source area (at Hagberg's Country Market located in Lake Elmo).

Site information can be found at:

Bayport Library 582 North 4th Street Bayport, Minnesota 55003-1111

Public comment is welcome and written comments must be received by March 1, 2007. Please send comments to Dan Card. If you have questions about the public meeting, please contact Jennifer Groebner.

Dan Card, P.E., Senior Engineer Project Leader

MPCA - Superfund Section 520 Lafayette Road St. Paul. MN 55155-4194

Phone: (651)297-8379

Toll-free/TDD: (800) 657-3864

Jennifer Groebner

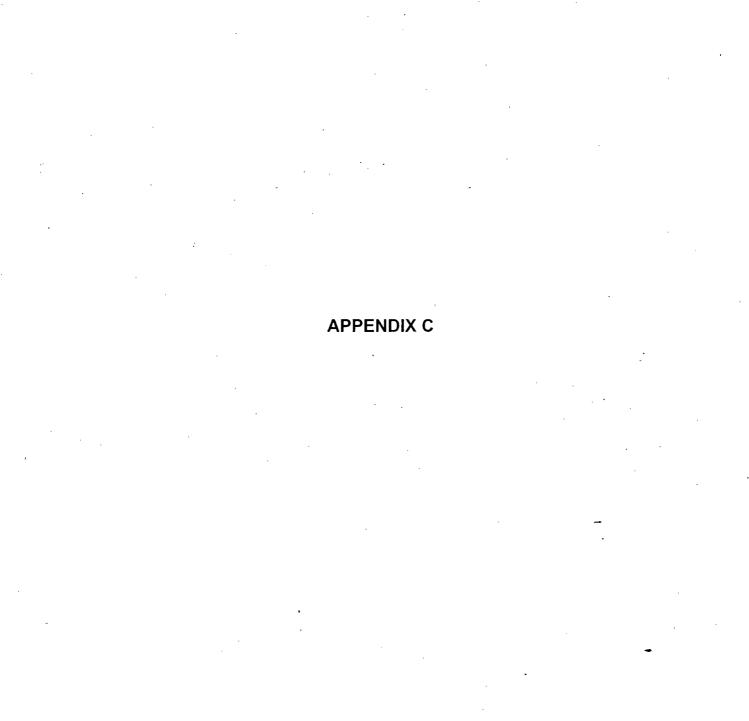
MPCA – Public Information

520 Lafayette Road St. Paul, MN 55155-4194

Phone: (651)296-7706

Toll-free TDD: (800) 657-3864

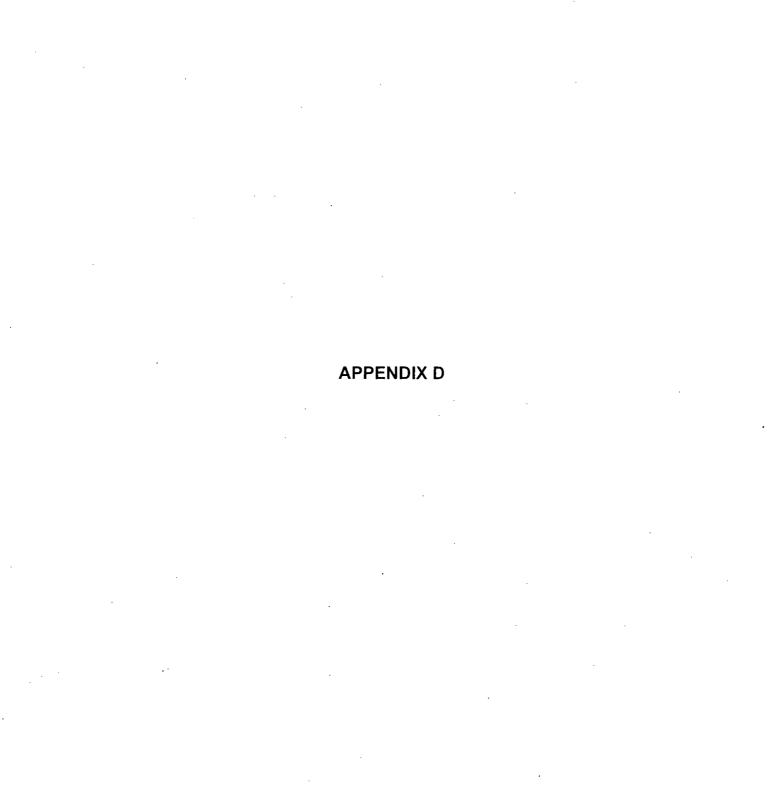
E-mail: dan.card@state.mn.us Fmail: jennifer.groebner@state.mn.us



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- Wenck 2001. Response Action Plan. Wenck Associates. Inc. January, 2001.



CARLER VEHICLE THERE

Please note that "O&M" is referred to throughout it is checoust. As sites where Long-Term Response Actions are in progress. O&M activities in a pre-referred to its system operations" since these sites are not considered to be in the O&M phase a rule froing remediated under the Supertund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status $-\infty$ All refers to "not applicable").

	1 SITE INFO	DRMATION
Sile name: Santum	remark p Gu	Date of inspection: FICF
Location and Region $\frac{\eta^2}{ h }$.	The same of the sa	11×10 4×1073534253469
tgency, office, or company review: AAPC	leading the five-wear	Weather temperature.
Remedy Includes Check Limitable Com Access from Xingson Com	raina ppi Talahan	
Terrer de de Suita de Xinhier de de Xinhier de de	•	
Attachments: // Inspect /	ner i sterare, eu	Situation and a final field
	II INTERVIEWS :	• in the ppt
O&M site manager	- (A	D.
interviewent (in 21 site in 12 Pro mettis suggestions (in P		-
2 O&M staff Nan Interviewed G at site G 2 Problems, suggestions, G R	itilice I by phone Phone	

3,	Local regulatory authorities and response agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.							
-	Agency De-to-n Toward Commissioner 124(7-651-457-)34 Contact Kent Grandlenard Commissioner 124(7-651-457-)34 Name Problems: suggestions, G Report attached	ક્ર						
and the state of t	Agency West Lake Toward Commissing 13/107/15/-983 26 Contact Sub-The-Pierr Commissing 13/107/15/-983 26 Name Title Date Phone no. Problems; suggestions; G Report attached	ı)_						
	Agency Contact Name Title Date Phone no Problems, suggestions: G Report attached							
	Agency Confact Name Title Date Phone no.							
	Problems, suggestions: C. Report attached							
4.	Other interviews (optional) G. Report attached.							

	O&M Documents © O&M manual ? As-built drawings ? Maintenance logs Remarks	y Rose sy a last offe a Reality a lastatic of Rose of the	2 Up to date 2 Up to date 3 Up to date	XX 1
	Site-Specific Health and Safety Plan 3. Contingency plan on Signacy response p Remarks	nous non obje an nous on bie	3. Up to date 1. Up to date	X\1 X\1
	O&M and OSHA Training Records Remarks	Alst Comme	is top to date	X \'\'\
	Permits and Service Agreements 1. Air discharge permit 3. Effluent discharge 5. Waste disposal 6. Other permits Remarks	B :	The state of the district of t	***
	Gas Generation Records Remarks		X .	•
	Settlement Monument Records Remarks	*	- Tathan deta	X \\
-	Groundwater Monitoring Records	÷	i i jir tar darir	**
-	Leachate Extraction Records Remarks	: F.	The production	X
	Discharge Compliance Records 3 Air 5 Water reffluent Remarks	Reutor a lataria 1 Revitor available	1 Up to date	X
	Daily Access Security Logs		* 1 1 1 1 1 1 1 1 1 1	VA 1

	IV. O&M COSTS
970	O&M Organization G State in-house
	O&M Cost Records Readily available G Up to date G Funding mechanism agreement in place Original O&M cost estimate G Breakdown attached
	From To G Breakdown attached Date Date Total cost From To G Breakdown attached Date Date Total cost From To G Breakdown attached Date Date Total cost From To G Breakdown attached Date Date Fotal cost From To G Breakdown attached Date Date Fotal cost From To G Breakdown attached Date Date Fotal cost From To G Breakdown attached Date Date Total cost From To G Breakdown attached Date Date Total cost From To G Breakdown attached Date Date Total cost From To G Breakdown attached Date Date Total cost
````\	Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons:
	V. ACCESS AND INSTITUTIONAL CONTROLS   G   Applicable   J   N A
A. Fe	ncing
1.	Fencing damaged G Location shown on site map G Gates secured N A Remarks
B. Ot	her Access Restrictions
!	Signs and other security measures G. Location shown on site map XNA.  Remarks

( . I	nstitutional Controls (ICs)		
•	Implementation and enforcement  Site conditions imply to a not properly implemented.  Site conditions imply (a not near a tally enforced.)	2 Yes   2 No 2 Yes   2 No	X''' X'''
	Type of monitoring services stary arrive to Frequency Responsible party of		
	Contact	Data	Parena av
	Reporting is up-to-date. Reports are verified to the least agency.	They The	
	Specific requirements to the form of the control of	Y28 - 2 No. 1 No.	***
	Adequacy (Adequacy (Adequa	· .	<b>X</b>
. (,	cacral		<del></del>
	Vandalism trespassing to Lorentz and the second sec	mitař krtiletí i ž <del>et</del> iř	
	Land use changes on sirely 5.5.8. Remarks		
	Land use changes off site X \ \ Remarks		
	VI. GENERAL SITE CONDITIONS		
Re	oods G Applicable C N N		· · · · · · · · · · · · · · · · · · ·
	Reads damaged 1 Control Annual Control Res	s addition	χ

VII. LANDFILL COVERS G Applicable  A. Landfill Surface  1. Settlement (Low spots) Areal extent Remarks  2. Cracks Lengths Widths Depth Depth  Bernarks  3. Erosion Areal extent Areal extent Remarks  4. Holes Areal extent Remarks  G Location shown on site map Areal extent Depth Remarks  G Location shown on site map Areal extent Depth Remarks  G Location shown on site map Areal extent Remarks  G Location shown on site map Areal extent Depth Remarks  G Location shown on site map Areal extent Remarks  G Location shown on site map Areal extent Remarks  G Location shown on site map Areal extent Areal extent Remarks  G Location shown on site map Areal extent Remarks  G Location shown on site map Areal extent Remarks  G Location shown on site map Areal extent Areal extent Remarks  G Location shown on site map Areal extent Areal extent Remarks  G Location shown on site map Areal extent Areal extent Remarks  G Location shown on site map Areal extent Areal extent Areal extent Remarks  G Location shown on site map Areal extent Areal extent Areal extent Remarks  G Location shown on site map Areal extent Areal extent Areal extent Remarks		P3		
A. Landfill Surface  1. Settlement (Low spots)		Remarks		8
A. Landfill Surface  1. Settlement (Low spots)				
A. Landfill Surface  1. Settlement (Low spots)				Martin and the state of the sta
A. Landfill Surface  1. Settlement (Low spots)		care a same deligitario contribir care del contributo care del c		MATERIAL STATE OF THE STATE OF
A. Landfill Surface  1. Settlement (Low spots)				
1. Settlement (Low spots) Areal extent Remarks  2. Cracks Lengths Widths Depth Remarks  3. Location shown on site map Lengths Remarks  4. Holes Areal extent Depth Remarks  6. Cracking not evident Depth Areal extent Depth Remarks  7. Vegetative Cover  G Grass G Cover properly established G No signs of stress G Trees Shrubs (indicate size and locations on a diagram) Remarks  7. Alternative Cover (armored rock, concrete, etc.) Remarks  8. G Location shown on site map G No signs of stress G Trees Shrubs (indicate size and locations on a diagram) Remarks  8. Alternative Cover (armored rock, concrete, etc.) Remarks  9. Bulges G Location shown on site map G Settlement not evident G Cracking not evident G Frosion not evident		VII. LA	NDFILL COVERS G Applicable	X\A
Areal extent Remarks  2	A. L	andfill Surface		
Lengths Widths Depths Remarks  2 Erosion	1.	Areal extent	Depth	G Settlement not evident
Erosion Septembre Depth Remarks  4 Holes G Location shown on site map G Fresion not evident Depth Remarks  5 Vegetative Cover G Grass G Cover properly established G No signs of stress G Trees Shrubs (indicate size and locations on a diagram) Remarks  6 Alternative Cover (armored rock, concrete, etc.) G N/A Remarks  6 Alternative Cover (armored rock, concrete, etc.) G N/A Remarks  6 Alternative Cover (armored rock, concrete, etc.) G N/A Remarks  6 Butges G Location shown on site map G Bulges not evident Height	<u>^</u>	Lengths Wie	dths Depths	© Cracking pot evident
Areal extent				
Holes G Location shown on site map G Holes not evident Depth Remarks  S Vegetative Cover G Grass G Cover properly established G No signs of stress G Trees Shrubs (indicate size and locations on a diagram) Remarks  Alternative Cover (armored rock, concrete, etc.) G N/A Remarks  G Location shown on site map G Bulges not evident Height	-	Areal extent	Depth	
Holes  Areal extent  Depth  Remarks  5 Vegetative Cover G Grass G Cover properly established G No signs of stress G Trees Shrubs (indicate size and locations on a diagram)  Remarks  6 Alternative Cover (armored rock, concrete, etc.)  Remarks  G Location shown on site map G Bulges not evident  Height				
S Vegetative Cover G Grass G Cover properly established G No signs of stress G Trees Shrubs (indicate size and locations on a diagram) Remarks  6 Alternative Cover (armored rock, concrete, etc.) G N/A Remarks  C Butges G Location shown on site map G Bulges not evident Height	.1	Holes Areal extent	G Location shown on site map Depth	3. Holes not evident .
G Trees Shrubs (indicate size and locations on a diagram)  Remarks  6 Alternative Cover (armored rock, concrete, etc.) G N/A  Remarks  7. Butges G Location shown on site map G Bulges not evident  Areal extent Height	,.		mere a communicación a communicación de la companiente del companiente del companiente de la companiente del companiente de la companiente del companiente de la companiente de la companiente del companiente de la companiente de	a companyon of the state of the
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7. Butges G Location shown on site map G Bulges not evident Areal extent Height	Ċ			
Remarks	,	Areal extent	G Location shown on site map	
		Remarks		

۱.	Wet Areas Water Dan	nage	Tibeta cos illi	Norway (see the	· .dent	
l	Wer areas	-	Locali nor		Areal extern	
ł	7 Ponding		Location s		·	•
	-		7 Location ship			
	G Sceps		Location of a			
	3 Soft subgrade		a Location of a	en de Suddaap	Areal extent	
l	Remarks				4-6	
ľ	-team-ran					
4	Areal extent	Sinder	F Feeten de	er er sitte jag	» Nu exidence of slope ira	stability
ł	Remarks				• 20	
В. В	elitorizontally constructe	danear to			ifil' side slope to interrupt the	
	Flows Bypass Bench Remarks		1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1	en kituma t	XX Vot okas	-
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				<del>_</del>	<del></del>	
	Bench Overtopped Remarks				×	
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:	Settlement Areal extent Remarks		Street in 1. Description	·	c (dence of settlettser.)	· <del>-</del> - •
-	Material Degradation Material type Remarks		KC SECWHOR ST. Areal extent	men I No	er adence of degradation	
:	Erosion Areal extent Remarks		ust spewij en site Denot	magn N. N.	er idence of enision	

-}	Undercutting © Location shown on site map © No evidence of undercutting Areal extent Depth Remarks
5.	Obstructions Type G No obstructions G Location shown on site map Areal extent Size Remarks
6.	Excessive Vegetative Growth  G No evidence of excessive growth  G Vegetation in channels does not obstruct flow  G Location shown on site map  Remarks
D. Co	ver Penetrations G Applicable NA
	Gas Vents G Active G Passive G Properly secured locked G Functioning G Routinely sampled G Cood condition G Evidence of leakage at penetration G Needs Maintenance G N X Remarks
2	Gas Monitoring Probes  3 Properly secured locked@ Functioning @ Routinely sampled = 0 Good condition  G Evidence of leakage at penetration @ Needs Maintenance @ N V  Remarks
3	Monitoring Wells (within surface area of landfill)  G. Properly secured locked G. Functioning G. Routinely sampled G. Good condition  G. Evidence of leakage at penetration G. Needs Maintenance G. N.A.  Remarks
4.	Leachate Extraction Wells  G Properly secured/lockedG Functioning G Routinely sampled G Good condition G Evidence of leakage at penetration G Needs Maintenance G N/A  Remarks
5	Settlement Monuments G Located G Routmely surveyed G N A Remarks

	Cas Collection and Treatment	Application	X
:		Finernic destrict Needs Maintenan	et 1 destricuse
-	Gas Collection Wells, Mar G Good condition Remarks	•	
:	Gas Monitoring Facilities 4 Good condition Remarks	a les transcor Neces Number als	tioner of some adings. Note:
F. (	over Drainage Layer	V.p., c.m.	XXX
;	Outlet Pipes Inspected Remarks	Futier inn s	<b>₹</b>
-	Outlet Rock Inspersed Personal		
c. 1	Detention Sedimentation Funds		`.
!	Siltation Areal external Siltation not evide in Remarks	j. îve	. 🔨 4
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3	Outlet Works Remarks	Fanction and the No.	
1	Remarks	Functioning (T.N.)	
	The second secon		TO A MARKET TO AND THE ART I .

11. I	Retaining Walls	G Applicable	N/A	
	Horizontal displacement Rotational displacement Remarks	t	Vertical displac	G Deformation not evident seement
2	Degradation .	G Location sho	own on site map	G Degradation not evident
I. Pe	rimeter Ditches/Off-Site I		· · · · · · · · · · · · · · · · · · ·	
1.	Siltation G Loc Areal extent_ Remarks	ation shown on si Depth	te map G Siltation	not evident
7	Vegetative Growth  © Vegetation does not if Areal extent Remarks	G Location sho	own on site map	GNA
4	Arcal extent Remarks	Depth		G. Erosion not evident
<b>.</b>	Discharge Structure Remarks	_	G N/A	
	VIII. VEF	RTICAL BARRI	ER WALLS C	S Applicable XN/A
1.	Settlement Areal extent Remarks			G Settlement not evident
2.	Performance Monitoring Performance not monitoring Frequency Head differential Remarks	ngType of monito	ring G' Evid	lence of breaching

	IX. GROUNDWATER SURFACE WATER REMIDIES - XAppleagiz - 1 NA		
<b>4.</b> (	Groundwater Extraction Wells, Pumps, and Pipelines	X Applicable = 0 N A	
1	Pumps, Wellhead Plumbing, and Electrical Good condition — J. Alf required wells properly of Remarks	rerating 1 Needs Maintenance 3 N A	
:	Extraction System Pipelines, Valves, Valve Boxes, and C Good condition — Nee old interaction Remarks	Pther Appurtenances	
;	Spare Parts and Equipment  Readily available (1998) the Second Remarks	· · · · · · · · · Needs to be provided:	
<b>B</b> . \$	Surface Water Collection Structures, Pumps, and Pipelines	Ropi Lible XNA	
	Collection Structures: Pumps, and Electrical Collection Structures: Name of the Collection Collections		
-	Surface Water Collection System Pipelines, Values Value Action Country (New York New York) Remarks	a Bayes and Other Appurtenances	
÷	Spare Parts and Equipment  Readily available Toxics Communities  Remarks	. Us Neder begrowned	

C.	Treatment System Applicable G N/A
	Treatment Train (Check components that apply)  G Metals removal G Oil/water separation G Bioremediation  G Air stripping Carbon adsorbers  G Filters  G Additive (e.g., chelation agent, flocculent)  G Others  G Good condition G Needs Maintenance  G Sampling ports properly marked and functional  G Sampling maintenance log displayed and up to date  G Equipment properly identified  G Quantity of groundwater treated annually  G Quantity of surface water treated annually  Remarks
<b>.</b>	Electrical Enclosures and Panels (properly rated and functional)  G N/A Good condition G Needs Maintenance Remarks
;	Tanks, Vaults, Storage Vessels G.N.A. Coold condition G. Proper secondary containment. G. Needs Maintenance Remarks
1	Discharge Structure and Appurtenances  N.A. G. Good condition G. Needs Maintenance Remarks
.5.	Treatment Building(s)  NA G Good condition (esp. roof and doorways)  G Chemicals and equipment properly stored  Remarks
6.	Monitoring Wells (pump and treatment remedy) G Properly secured/lockedG Functioning G Routinely sampled G Good condition G All required wells located G Needs Maintenance N/A Remarks
D. N	Honltoring Data
1.	Monitoring Data  S Is routinely submitted on time G Is of acceptable quality
2.	Monitoring data suggests: G Groundwater plume is effectively contained G Contaminant concentrations are declining

		· · · · · · · · · · · · · · · · · · ·
i	Monitoring Wells in atural attenuation remode	
	G Properly secured locked 3 functioning 1.3 R Ultimity sampled	© Good condition
	G All required wells located G. Needs Maintenance	
	Remarks	
	X. OTHER REMEDIES	
	If there are remedies appears far the site which are roll or given on the site	THE STREET CONTROL OF STREET STREET
•	the physical nature and the number of the fitting of the second of the s	
	XL OVERALL OBSERVATIONS	
4.	Implementation of the Remedy	
	Describe issues and insertiations relating world in the continuous	t from a and tuneth nations
	designed. Begin with a rief statement of whach it is the	
	plume: minimize and firms an and gas arm as an	
	Hoperson was a few orders of	4
	William C State of Administration (1944)	
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	FARE THE SECTION AND ADDRESS OF THE SECTION ADDRESS OF THE SECTION AND ADDRESS OF THE SECTION AND ADDRESS OF THE SECTION ADDRESS OF THE SECTION ADDRESS OF THE SECTION AND ADDRESS OF THE SECTION ADDRESS O	
	e e e	
<b>B</b> .	Adequacy of O&M	
	Describe issues and once yarrons to are it to the one of content of the	some TOAM proveduces in
	<ul> <li>particular, discuss the presationship to the number of officers of access</li> </ul>	दियों के <b>राज्य</b> क रहें जिल्हा स्वयं स्वयं ह
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C.	Early Indicators of Potential Remedy Problems				
	Describe issues and observations such as unexpected changes in the cost of scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.				
D.	Opportunities for Optimization				
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.				
	360 A				